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BEHAVIOURISM

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A SYMPOSIUM BY

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INTRODUCTION

BY JOSIAH MORSE

SCIENCES are the products of human minds, Scientists are human beings, subject to the same limitations and responsive to the same psycho-social forces as other human beings. It is necessary to emphasize these platitudes because in the minds of many science (often written with a capital S) has been elevated to the level of a cult, and its votaries are regarded as belonging to a species of supermen who speak with almost supernatural authority. This is not to be interpreted as a disparagement of the sciences or scientists. The statement of the simple fact is in the best interest of both. In other words, it is of no genuine service to scientists to ascribe to them powers which no human being possesses, or qualities to their work which they do not and cannot have. Scientists, like other human beings, are children of the age in which they live, and reflect it in their viewpoints and conclusions. A fairly accurate history of any period could be written, based solely upon a study of the scientists —their interests and productions—of that period. The changes in manners, customs, laws, and even in fashions have hardly been more numerous or

more rapid than the changes in scientific concepts, hypotheses, and inferences in recent years. Which is again no disparagement of science, but a simple fact, and one to its credit.

These trite observations are by way of explaining the vogue of Behaviourism in America. Engrossed as the nation is in the production and use of machines, it would have been surprising indeed if it did not reflect its absorbing machine-interest through pragmatism in philosophy and Behaviourism in psychology. As such, both movements are interesting and of value to the social psychologist. But that they express finality in either philosophy or psychology would be an absurd reflection, unless one believes that this machine age will endure forever. If, however, it will pass, as the pastoral and agricultural ages have passed before it, then it is reasonable to suppose that the machine-culture will pass with it. In the former ages men lived close to nature and observed its many and changing moods and phases. It seemed to them to be something alive and to have will and intelligence and purpose. God was not far off, and certainly not non-existent. Many walked and talked with Him, or believed they did. But now the same type of men live in subways, office buildings, shops, and factories. They seldom see sky or grass. They hardly know where their food and clothing come from. Inventions have almost completely wrapped them in insulating tape, rendering them immune to the forces of

nature. If they need anything, they do not have to pray for favourable weather or other blessings; they need only to turn on the steam, press a button, push a lever, or "step on the gas," and their wishes are fulfilled. Machine is a great and good god; praise be to Machine!

When young men coming out of such an environment enter the psychological or other scientific laboratories and deal with physical and chemical properties, with mice and guinea-pigs and sense organs, muscles, and glands, all of which respond fairly uniformly to the stimuli applied, they quite naturally conclude that the entire universe can be comprehended within the stimulus-response formula, and that there is naught else besides. By the time they get their Ph.D.'s they are mechanists and somatologists, now commonly known as Behaviourists. And they insist, repeating the dicta of their teachers, that science can deal only with data that can be objectively observed and measured. If the facts cannot be expressed in mathematical terms and formulas, they are not scientific facts, and the next step—the denial that they are facts at all—is an easy one.

They forget, or else they do not know, the distinction William James drew between "knowledge of" and "knowledge about"—the former being knowledge of psychological facts and the latter of physical facts. And, as James further pointed out, the former are the surer of the two, being more immediate and intimate.

Aldous Huxley elaborates the same thought in a recent article. "The only facts of which we have direct knowledge are psychological facts. The Nature of Things presents us with them. There is no getting around them, or behind them, or outside of them. They are there, given.

"One fact cannot be more of a fact than another. Our psychological experiences are all equally facts. There is nothing to choose between them. . . . Science is no 'truer' than common sense, or lunacy, or art, or religion. It permits us to organize our experience profitably; but tells us nothing about the real nature of the world to which our experiences are supposed to refer. From the internal reality, by which I mean the totality of psychological experiences, it actually separates us. Art, for example, deals with many more aspects of this internal reality than does science, which confines itself deliberately and by convention to the study of one very limited class of experiences—the experiences of sense. To collect records of sense-experiences (particularly of those which lend themselves to description in terms of numbers), to generalize them, to draw inferences from them, to construct from them a logically harmonious scheme of description and explanation—this is the business of science. At the moment, it is worth remarking, there is no scheme that harmoniously reconciles all the facts even in the limited sphere of scientific investigation. What is sense in the subatomic universe is

pure nonsense in the microscopical world. In other words, logic compels us to draw one set of inferences from certain sense experiences and another irreconcilable set of inferences from certain other sense experiences."[1] And Münsterberg years before remarked: "The scientist forgets that all this causal explanation has no meaning whatsoever, and his statements no truth, and his universe no reality, if he and we are not presupposing an idealistic belief in those absolute standards of eternal value by which we can discriminate the true and the untrue, the good and the bad, the real and the unreal."[2]

However, it would not be fair to say that all psychologists, young and old, succumb to the machine-culture in equal degree. Some escape the disease altogether; some have it in its most virulent form, and some only moderately. There is every shade of Behaviourism, from the palest pink to the most saturated red. And that again is because scientists are "human, all too human." There are conservatives and radicals and liberals in science as in politics, business, art, religion, and all other spheres of interest and activity. When one becomes a scientist he does not cease to be a human being. He takes his temperament and mental type with him wherever he goes. A few samples will suffice to illustrate the varieties of Behaviourism.

But before these are given it may be worth

[1] *Harper's Monthly Magazine*, September 1929.
[2] Münsterberg, *Science and Idealism*, p. 70.

while to point out that Behaviourism is no new "ism"; no modern mental autogeny. It is a natural offshoot of materialistic ontology and cosmology and atheistic theology. Wherever and whenever the latter obtain, Behaviourism will also be found. Thus, among the ancient Greeks, Democritus reduced the universe to a mechanism of atoms. Man is a bundle of atoms; ideas are fine atom-complexes. There is no teleology anywhere. Mechanical cause alone is operative. He and his teacher, Leucippus, were the first materialists and, by the same token, the first Behaviourists. Of course they were atheists. So was Epicurus a century and a quarter later; and still later, Lucretius, his Roman follower. In the beginning of the seventeenth century Thomas Hobbes interpreted all phenomena—physical, psychological, and sociological—in terms of motion. Consciousness is brain motion. Everything is amenable to mathematical treatment. Descartes, in spite of his *Cogito, ergo sum*, his dualism, and his proofs for the existence of God and the world, was a Behaviourist, though somewhat hesitating and inconsistent. Animals, he held, are mere automata responding to external stimuli. Only the fear of the Church, or possibly that a hang-over from his early theological training, made him make a partial exception of man, to the extent of allowing him a soul, which can control the body. But most of its actions are automatic, like those of the lower animals.

About the middle of the eighteenth century La Mettrie, in his *L'Homme Machine*; Condillac, in his imaginary statue endowed only with the sense of smell; Helvetius, von Holbach, and other Encyclopædists did what Descartes did not dare to do—namely, reduce man to a mere automaton. All conceptions of God, soul, mind, and purpose, were fearlessly discarded. "Matter and motion alone exist. Mind is nothing but an occult term that accounts for nothing. All things alike are necessary, and subject to mechanical law. . . . Necessity rules in the moral, as in the physical, world; the particles of dust and water in a tempest or a whirlwind move by the same necessity as an individual in the stormy movements of a revolution. There is no difference between the man who throws himself out of a window and the man whom I throw out, except that the impulse acting in the second comes from without, the other from within his own mechanism."[1]

The late Professor Titchener, criticizing Watson's claim that "Behaviourism is an American production," goes back only to Comte and Cournot. How absurd the claim is the above brief sketch sufficiently indicates. The writer recalls a lengthy discussion he had with Watson soon after the latter began publishing his Behaviouristic views in the journals. Unable to convince him of the error of his ways, I finally said: "The trouble with you, Watson, is that you

[1] Rogers, *Student's History of Philosophy* p. 398.

don't know any philosophy." "I admit it," he replied, "and I don't think I have missed anything." To which it was easy, of course, to make the obvious retort: "But you are not in a position to judge." If Bacon's aphorism, "A little philosophy inclineth man's mind to atheism," be true, what can be expected from no philosophy at all? The other half of the aphorism is also worth quoting: "but depth in philosophy bringeth men's minds about to religion." It would be very interesting and illuminating to ascertain how much philosophical training the Behaviourists have had.

Coming now to the different shades and tints of present-day Behaviourism, it will suffice to indicate that the colour-scale ranges all the way from Watson, Meyer, Weiss, and Holt, who taboo the word "consciousness" and consider any reference to it a scientific sin, to Yerkes, Warren, Pillsbury, Dunlap, Bawden, Tawney, Colvin, and Bagley, and most recently, Miss Calkins, all of whom, while they agree in the main with Pillsbury that "consciousness is at once an important means of understanding behaviour and an interesting object of investigation for itself," also endorse the position of Yerkes when he says: "Nevertheless I must insist that I am still a Behaviourist, for I believe in the importance of the scientific study of behaviour and am more deeply interested in it than in any other scientific activity."[1]

[1] A comprehensive classification of Behaviourisms is to be found in A. A. Roback, *Behaviourism and Psychology*.

Parmelee regards the mind as "a stage in the determination of certain kinds of behaviour," and likens it to "the trigger of a gun or a button which releases an electric current which explodes a mass of nitro-glycerine." Meyer, in *The Psychology of the Other-One*, omits the word "consciousness" from his index, and Watson, contrasting the old psychology with Behaviourism, says: "All schools of psychology except that of behaviourism claim that '*consciousness*' *is the subject-matter of psychology*. Behaviourism, on the contrary, holds that the subject-matter of human psychology is the *behaviour or activities of the human being*. Behaviourism claims that 'consciousness' is neither a definable nor a usable concept; that it is merely another word for the 'soul' of more ancient times. The old psychology is thus dominated by a kind of subtle religious philosophy." And to make sure that no vestige of the "soul" or consciousness remained in his Behaviourism, he tells us, "he dropped from his scientific vocabulary all subjective terms such as sensation, perception, image, desire, purpose, and even thinking emotion as they were subjectively defined."[1]

The Behaviourist's platform is as simple as his definition of psychology. "The rule, or measuring rod, which the behaviourist puts in front of him always is: Can I describe this bit of behaviour I see in terms of 'stimulus and response'? By stimulus we mean any object in the general

[1] *Behaviourism*, p. 6.

environment or any change in the tissues themselves due to the physiological condition of the animal, such as the change we get when we keep an animal from sex activity, when we keep it from feeding, when we keep it from building a nest. By response we mean anything the animal does—such as turning toward or away from a light, jumping at a sound, and more highly organized activities such as building a skyscraper, drawing plans, having babies, writing books, and the like." [1] The only difference between Behaviourism and physiology, he admits, is " in the grouping of its problems, not in fundamentals or in central viewpoint. Physiology is particularly interested in the functioning of parts of the animal—for example, its digestive system, the circulatory system, the excretory systems, the mechanics of neural and muscular response. Behaviourism, on the other hand, while it is intensely interested in all of the functioning of these parts, is intrinsically interested in what the whole animal will do from morning to night and from night to morning." [2]

Other contributors to this volume will expose the fallacies and absurdities of the Behaviourist's viewpoint and platform. I shall limit myself to pointing out two fundamental weaknesses. In the first place, when Watson and his followers say that the only question they keep before themselves is, " Can I describe this bit of behaviour I

[1] *Behaviourism*, p. 6. [2] *Ibid.*, p. 10.

see in terms of stimulus and response ? " they forget that the description will be so much sound, signifying nothing, unless it be *interpreted* in terms of the reader's or listener's own inner experience. Nay, more, the describer himself, unless he can reduce himself to a talking-cinema which knows not what it sees and hears, must resort to his subjective experiences in giving his description. If human beings were mere recording instruments, who or what would formulate scientific laws and principles ? And *for* whom ? Other recording instruments ? Why ? That they might better adjust themselves to their environments. But that implies purpose, which the Behaviourist strenuously denies. We have left, then, only recording instruments which adjust themselves to their environments for no purpose, unless it be that of adjustment. And that leads to the conclusion arrived at by a recent Behaviouristic poet, that " dust is the common source from which

. . . . . stream
The cricket's cry and Dante's dream."

And Theodore Dreiser with a facile flourish reduces everything to " those rearranging chemisms upon which all the morality and immorality of the world is based."

Rufus Jones has made the best answer to this nonsense. " We are quite willing to be told," he writes, " that we are curiously carved pieces

of the earth's crust, or strange dust-wreath vortexes, if we may add to the account *the something more which we know we are*. The whirling dust-wreaths of the street do not have longings. The bits of earth-crust which we throw about with our shovel do not yearn for what is not and then forthwith construct it. Desires and strivings, visions and ideals, emotions and sentiments, are as much a genuine part of us as are the iron and lime and phosphorus in our bodies. We have insights of what ought to be, appreciations of beauty, convictions of truth, experiences of love, and these things are not part of the earth's crust. They are not physical realities. They are not *results* of masses of matter in motion. They cannot be adequately explained mechanically. They are real for mind and only for mind."[1]

The other main weakness of Behaviourism is the assumption that the physical sciences are the only sciences and that the tangible and visible are the only legitimate materials of science. What then becomes of mathematics, logic, ethics, æsthetics, jurisprudence, and psychopathology? Are these mere myths? And as for the latter half of the assumption, Professor Hollingworth has acutely observed that the Behaviourists "have a peculiar mania for visual phenomena and are deaf and dumb and otherwise insensible to smells, tastes, pains, and the great array of thermal, tactile, kinæsthetic, and affective objects . . . because

[1] *New Studies in Mystical Religion*, pp. 189, 190.

such objects cannot be seen, and will not inscribe themselves on smoked drums."

Elsewhere I have written : " Twenty-five years ago Stanley Hall, speaking, I think, before the American Psychological Association, warned psychologists to beware of mathematics. Were he living to-day he would probably warn them against animals and their conditioned reflexes. Not that conditioned reflexes are not true, but that they do not solve the whole riddle of mental life. We are essentially false to the theory of evolution when we explain man altogether in terms of the animals he has left behind him and not at all in terms of the *Übermenschen* who have already sprung from his loins. The materialists' formula seems to be : if you wish to understand man, even the highest and best that is in him and his works, study mice and guinea pigs, or better still, perhaps, the amœbæ and paramecia. They apparently forget that because physics and chemistry can discover only what is physical and chemical in man it does not follow that he is only a bundle of physical forces and chemical compounds, nor because animal psychology can discover only what is animal in man does it follow that he is animal and nothing more."[1] To understand man it is necessary to envisage his destination as well as his origin. To know only the latter is to know but half the story.

[1] " Behaviourism for Mysticism," *Methodist Quarterly Review*, July 1928.

Quoting again from the same article: "The issue, boiled down, is fairly simple and clear-cut: either we are dust, whatever that may be; mere arrangements of chemisms (another inexplicable); or we are some sort of temporal individuations of Reality whence come our norms or ideals in speech, thought, art, and conduct; our initiative and creativeness, our loyalties and hopes, our freedom, and will to struggle, adventure, and accomplish. Something like the quantum theory of light may also apply to mind or consciousness. Our sciences, arts, philosophies, morals, religions, and all their by-products are likewise either fortuitous and meaningless groupings of mindless stuff, like wind-swept sands; or else they are the accumulations of hard-earned capital, whose investments and currency—truth, beauty, goodness, peace, comfort, security, and happiness—are guaranteed by the Creator of ever-increasing values. . . . There is nothing in science or philosophy which compels us to assume, much less admit, that our moral, religious, and æsthetic experiences and the systems and institutions they give rise to are but precipitates, or surrogates of collocations of electrons and protons that have none of those properties in them. At least equally plausible and certainly more æsthetic, ethical, and dynamic is the assumption that they are of the very nature of Reality itself, of the *deus ex et in nobis*. . . . At any rate, the burden rests on the materialists to show how we can have truth, beauty, and goodness, if they

do not reside in the very warp and woof of being."

Finally, I wish to repeat the warning I uttered before the Southern Society for Philosophy and Psychology: When the Sophists taught the post-war youths of Athens that the individual is a law and a measure unto himself, that there is no authority or universal norm, the far-seeing Socrates realized that the inevitable outcome of such a doctrine would be social disintegration and confusion, resulting in the downfall of Athenian civilization. Our present-day sophists, with equal recklessness, are preaching equally disturbing doctrines to the present generation. And like their ancient prototypes they are gathering around them youths, and in this day maidens too, who delight to hear that the old gods are dead and the old beliefs with their checks and balances and controls are without validity and foundation in fact; that man is merely a two-legged goat who has been absurdly and unnaturally conditioned by the psycho-social environment projected from the far-distant and ignorant past; that the time has come for them to recondition themselves and strike off the antiquated shackles —to give full rein to their impulses, instincts, and tendencies, or, as the college flappers say, to liberate their libido and "can" their complexes. Though why a Robot should advise other Robots what to do is another of the many mysteries Behaviourism has not yet solved.

It may be that the ancient intelligentsia were wiser than we, in that out of a proper regard for the social welfare and stability they revealed their theories and speculations only to the initiated, in a language not understood by the masses. The natural scientists likewise insulate themselves with esoteric symbols, but the humanistic scientists have no such protective devices. It is all the more incumbent upon them, therefore, to conduct their investigations and deliberations with the utmost thoughtfulness and consideration, with true pedagogical tact and statesmanship. For he who would destroy the customs and traditions that energize, integrate, and stabilize individuals and nations, the beliefs by which men live, should be sure that he has in his other hand something of greater value to give. Never before in human history has there been such need for stabilizing and integrating forces in human lives, for never before have human minds been bombarded by so many and so powerful stimuli. Our minds are almost literally torn into shreds by the thousand and one objects, interests, and distractions that constantly demand our attention. We are in high gear and going on our nerves—not only when we work, but also when we play and seek amusement and recreation. The result is a bumper crop of nervous and mental disorders and moral deterioration. Mental hygiene, if nothing else, demands something that will integrate and harmonize us, that will furnish the motives and occasions for us to

become whole as well as holy, to find our souls cleansed and strengthened by losing them in something larger and other than ourselves. And as yet man has found nothing better than religion and art to accomplish this, for in both the particular makes contact with the universal and feels itself unified and enhanced. It is the function of education, using the term in its broadest sense, to integrate the individual, physically and mentally, into a harmonious whole, and while doing it to integrate him also with his fellow-men. But even after it has accomplished this, it has fallen short of a complete integration and synthesis. For education, at best, can bring forth only an abortive religion, like August Comte's, in which the vain attempt was made to substitute Humanity for God. The brotherhood of man calls for the Fatherhood of God, in some sense, to complement and underwrite it. The soul or mind of man demands a higher and completer synthesis than education alone can give it. Its feeling of separateness from its *Urgrund*, its homesickness, so to speak, can be cured only by a re-ligio experience.

If, therefore, in view of this profound need, it be impossible to curb or censor the Menckens, Lewises, Dreisers, Cabells, and other sophists both in popular literature and in psychology, those of us who are sensible of our social responsibility should at least rebuke and repudiate them in no uncertain terms. I yield to no one in my respect for serious and high-minded investigators, nor

would I, of course, advocate the slightest curtailment of the modest measure of a *Lehr-und-Lernen Freiheit* we now enjoy; but we need to remind ourselves that the abuse or misuse of liberty by the reckless, the irresponsible, and the *Ausgelassenen*[1] inevitably leads to the loss of it or its serious curtailment.

It is with the view of furnishing an antidote to the behaviouristic poison that has been spread so freely among the young that this volume is sent forth to the public.

[1] Excessive or wild men.

I

THE PSYCHOLOGY THEY TEACH IN NEW YORK

BY WILLIAM McDOUGALL

LIKE a good American, I begin by telling two funny stories. Once upon a time there was a sophomore,[1] intelligent but idle, who took a course in psychology; he neglected to read the prescribed text and cut his lectures shamelessly. When quiz-day came and a question was put to him, he had no inkling of the proper answer. But he had an inspiration. He had noticed that most of his fellow-students, when questions were put, replied by uttering the word *sarbons*, a reply which seemed to soothe and satisfy the instructor. He, therefore, uttered this word of mystic potency and, to his joy, it produced its usual effects—a smile and a good mark. On leaving the lecture room our hero was moved to ask of a companion what a *sarbon* might be. It was then explained to him that *sarbon* is the colloquial form of a mighty formula which solves all problems in psychology—namely, stimulus-response bond (S-R bond). The

[1] This story has been circulating in the psychological laboratories; its significance entitles it to the honour of print.

bond in question is conceived as a nervous path connecting some sensory point of the body with some muscle or group of muscles. Every human action is conceived as in principle explicable by tracing the transmission of a physical impulse from a stimulated sensory point, along such a nervous path or bond, to a muscle group. This is the essence of the celebrated theory that man is a machine and his every action a reflex action, a purely mechanical effect of a physical stimulus. Thus presented with the key that solves all problems, our sophomore remarked: "Surely that is a theory of morons, by morons, and for morons!" But he soon found that any student, if he ventured to doubt the perfect adequacy of the theory of *sarbons*, was smiled upon with pity by all his fellows as one who still dwelt among the metaphysics and the mythology of the dark ages. Moreover, he aspired to enter the teaching profession; and he soon found that in that noble profession all other scepticisms are tolerable, but not scepticism of the *sarbon*; in short, the *sarbon* was, he found, the indispensable key to practical as well as to theoretical problems. So he was converted, and went on his way rejoicing.

My second story requires for its appreciation a keen sense of humour. The statisticians have calculated that of all the boys now living in New York City one-half will sooner or later become convicted criminals. The humour of this story appears clearly only when we bear in mind that

New York is the metropolis of the American nation, the nation which claims the moral leadership of the world; and the further fact that the city is the scene of operation of several universities, one being the largest in the world, of a school for child-educators which in size and prestige far surpasses every other, of a vast system of free public schools, and of many immensely wealthy, active, and highly organized agencies for moral uplift and social improvement. To me, an Englishman of partly Scotch ancestry, therefore inevitably deficient in humour, the story seems to be merely tragic; but to anyone with a keen sense of humour the story of this conjunction must surely seem very funny.

But why do I tell these two stories? Are they entirely unrelated to one another and to the topic of the discourse they introduce, as funny stories so often are? No! I venture to suggest that the two stories are intimately related and really contain, when this relation is grasped, the essence of my discourse.

Do I, then, suggest that the terrible crime rate of America is the effect of the famous *sarbon* theory? I do not go quite so far as that. But I do suggest and contend that the crude materialistic theory of human nature, the theory that man is a machine and nothing more, taught dogmatically every year to hundreds of thousands of innocent school-teachers and college students, cannot fail in the long run to contribute very

considerably to the decay of morals and the increase of crime. For it is a theory utterly incompatible with any view of man as a responsible moral being and utterly incompatible with any religion that the plain man could recognize as such; a theory which represents man as incapable of choosing between good and evil, as the purely passive sport of circumstances over which he has no control; a theory which, if it is accepted, must make all talk of self-control, of self-improvement, of purposes and ideals seem sheer nonsense, survivals from an age of naïve ignorance.

Fortunately, human nature has a vast capacity for illogicality, for accepting a theory and acting as though it were utterly false. Hence, no doubt, most of the multitude who innocently imbibe this doctrine continue to strive conscientiously to do their duty, continue to pursue some ideal of efficiency, honesty, and public service, and to treat their children and their pupils as moral beings. But in the long run, as the years pass and successive generations of students absorb this dogma, it is inevitable that their attitude toward life and its problems shall be affected, and that the tone and manners of society shall become increasingly such as the theory requires or points to.

Earlier centuries have had their persuasive teachers of materialism. In the eighteenth century La Mettrie and Baron d'Holbach had many readers; in the nineteenth, Ernst Haeckel and Jacques Loeb were esteemed great scientists.

But never before the present century has sheer dogmatic materialism been propagated by a vast system of public instruction and by universities of the highest prestige counting their students by tens of thousands. And in the earlier centuries materialism was taught merely as a view, a guess, in support of which much might be said by an ingenious exponent out to shock the bourgeoisie and to combat the influence of a too dogmatic and thoughtless priesthood. But now it is taught as truth established by scientific research and supported by all the immense prestige of modern science. And, though something of the desire to shock the bourgeoisie may be suspected in some of the modern exponents of materialism, most of them teach it in simple faith that it is true, a faith and singleness of motive which render their teaching the more effective.

The theory that man is a machine is primarily a deduction from a naïve metaphysical assumption, the assumption that the universe constitutes one vast mechanism. But the psychologists with whom we are here concerned claim to have demonstrated experimentally the truth of this assumption as applied to man and to have shown in considerable detail just how the machine called man operates or, rather, is operated, how its strings are pulled, how all its movements, whether of limbs or of speech organs, are mechanically caused, how all that we call effort or volition is an illusion, all that we call memory a mechanical

registration of physical traces, all that we call faith, hope, charity, and generosity, mere names to which in reality nothing corresponds.

If this theory of human nature were true, were scientifically established, we should of course have to accept it, to grin and bear it as best we could, and should have to counteract as far as possible its depressing moral influence. Those of us who are opposed to it are suspected by its exponents of dishonesty, denying the truth because we dislike it; they seem unable to imagine that we find their evidence and their reasoning utterly inconclusive, and honestly believe them to be hugging a monstrous error. One of the most distinguished of them has been heard to tell his students openly, referring to a leader of the opposition, "X—— is a charlatan." I happen to be intimately acquainted with that person, and can testify that, faulty and fallible as he is, he is anything but a charlatan. In face of this simple-minded attitude, protestations and disclaimers are of no avail. But it may be of service to sketch the actual state of affairs, as follows:

The metaphysical assumption from which was deduced the theory that man is a machine is now very generally discredited; its adherents become fewer with every year that passes. The doctrine of emergent evolution, now rapidly coming into general favour, is leading away from it many biologists who had felt themselves bound to the machine-theory in spite of its many absurd im-

plications, showing them a way out of what seemed a blind alley. But the psychologists of the group criticized remain unaffected by this movement of contemporary thought; for they claim to have replaced the metaphysical foundation of the theory with scientific demonstration of its truth. Of this alleged scientific demonstration the very core and essence is the principle of reflex action and of its adequacy for the explanation of all human and animal behaviour. The conception of reflex action comes down from Descartes; but modern research has made it a truth rather than a brilliant guess and has shown that the principle does seem adequate to the explanation of many of the simpler, more machine-like movements of the parts of the body.

The most definite step in the extension of this principle to the explanation of all action was made by the distinguished head of Teachers' Training College of New York City, Dr E. L. Thorndike, at a time when he was an enthusiastic young disciple of William James. Dissatisfied with the somewhat vague and anecdotal basis of the animal psychology that had taken shape in the later nineteenth century, Thorndike set out to observe just exactly how animals behave under strictly controlled conditions. This was a most meritorious effort, in the course of which the young psychologist proved himself a vigorous and independent thinker. He worked in the main with cats, and his most famous experiment con-

sisted in shutting a very hungry cat in a cage or puzzle-box, with food near the barred front of the cage but out of reach of the imprisoned animal; the cage had a door secured by a latch so placed that movements of the cat might turn the latch and allow the door to fall open. This experiment he repeated many times with each one of a number of cats. The general result was that each cat learned sooner or later to turn the latch with little delay and promptly to secure the food.

Such learning was regarded by Thorndike as a typical instance of animal learning and as a typical display of whatever may properly be called "the intelligence of animals." So far we may agree with him. Thorndike's account of such behaviour, of such "intelligent" learning, seemed to point to the following interpretation. The cat in the cage does not try to escape from it in order to get the food. It is restless because hungry; and this means that its empty stomach contracts and, in so doing, stimulates sensory nerve-endings in its walls; and such stimulation, propagated to the brain, keeps the animal on the move—*i.e.*, making vague reflex movements; these, in turn, are modified by other reflexes excited through special sense-organs, such as those of touch and vision and hearing. In the course of a long succession of such *purely random* mechanically determined reflex movements, some one movement sooner or later brings some part of the cat in contact with the latch in a way that releases the door and allows

the cat to escape from the cage. Thus the cat's escape on the first occasion is a purely mechanical reflex process. But the cat on frequent repetition of the experiment "learns" to escape promptly, to make with a minimum of delay the necessary movement for the release of the door. How is this fact to be explained? Here Thorndike's bold attempt to find an explanation of a typically "intelligent" action in terms of physics and chemistry fell short of completeness. Of all the cat's movements, one only leads to escape and food. This one only is, then, said Thorndike, followed by pleasure; and such pleasure "stamps in" the tendency to this particular movement; or, in other words, the pleasure facilitates that particular reflex action, improves or strengthens the *sarbon* between the sensory point and the muscles concerned.

A mental element or factor—namely, pleasure—thus remained in Thorndike's scheme. But it was easy to assume that "pleasure" could somehow be interpreted in terms of some physical or chemical peculiarity of the event, some peculiarity not yet revealed by science. Hence, all the mechanistically minded accepted Thorndike's interpretation with pleasure; and the pleasure seems to have stamped it very deeply into their brains. For the great merit of the scheme was that it seemed to wipe away from such "intelligent" action, and therefore from all learning processes, every trace of purpose, all taint of

teleology, all implication of endeavour or striving of the animal toward a goal. The whole train of events seemed to be successfully explained without assuming that the animal was trying to get out or to reach the food ; it was merely making random reflex movements.

But the main ground of the immense success and influence of Thorndike's experiment was that he claimed to find *experimental* evidence that nothing of the nature of insight and foresight, of understanding or intelligence as commonly understood, was involved in the process of learning. In the seventeenth century Descartes had proposed a similar mechanical explanation of all animal behaviour ; and it had found favour with many. But it had remained merely an ingenious guess without experimental support. The events that occur within the nervous system are on so minute a scale and are so complex, and they occur in strictures so inextricably entangled with other similar structures, that the interpretation of them is now and probably always will remain a matter of inference. Thorndike described the facts in a way which seemed to justify the inferential interpretation he put upon them—namely, he reported that, in general, the cat on repetition of the experiment showed no sudden improvement in its escape-behaviour, such as might seem to imply that it had gained some " insight " into the problem that confronted it, some understanding, however dim and imperfect,

of the relation of the latch and of its own releasing movement to the opening of the door: rather, he reported, the series of movements made by the cat, at first long and varied, becomes on successive occasions briefer and less varied; until finally it approximates to the simplest possible sequence of movements that will suffice to release the latch. This alleged gradual acquisition of the appropriate movement-sequence was the essential novel feature, the experimental basis for a "strictly scientific" or purely mechanical explanation of all animal and human action; it was the experimental foundation of the *sarbon* theory which Thorndike himself proceeded to apply with admirable thoroughness as the cue to all problems of human psychology, and hence, through the immense influence and prestige of Teachers' College, to make the materialistic foundation of educational theory and practice throughout America, and more especially in New York.

We have seen how Thorndike's theory of "intelligence" remained incompletely purified of all mental implications—namely, it still assigned a rôle and a function to feeling, to pleasure, and pain. Some of the mechanists sought vainly to purge it of this foreign element, this remnant of primitive superstition, by propounding vague guesses as to how pleasure and pain may be interpreted in physico-chemical terms. Others took the more effective line of arguing that the assignment of a rôle to pleasure was needless; for, said

they, the cat's releasing movement is always the last of the series that leads to escape; and it is also the only one of such series that is made upon every occasion of escape; hence, the two great principles of recency and frequency of repetition suffice to explain the fact that, of all the supposedly random reflex movements made by the cat in the cage, this one alone becomes more and more facilitated, until it alone is made promptly and with machinelike regularity. Thus the mechanical interpretation of "intelligent" action was purged of the last surviving remnant of mentality.

But a further step remained to be accomplished. It was now possible, it was claimed, to explain all intelligent behaviour of animals without attributing to them anything of the nature of consciousness, of awareness of objects, of sensations, ideas, feelings, or strivings; therefore, we no longer have any ground for attributing conscious experience of any kind to animals. Further, the "intelligent" actions of men are not different in kind from those of the animals, they are merely more complicated; hence we are required by the scientific principle of economy to explain all human action also without taking account in any way of conscious experience of any kind; human behaviour also is merely mechanical reflex action, simple or complex; and human "intelligence" is now proved to be just what Herbert Spencer said it was eighty years ago—namely, a mechanical compounding of mechanical reflexes. Thus

Behaviourism emerged full-blown from the mouth of Dr J. B. Watson. It remained and still remains a question whether the radical Behaviourist means to deny the reality of conscious experience, or merely holds that to take account of it in any way is utterly unprofitable, in fact, prejudicial to all understanding of and successful dealing with human problems. Anyway, he would rule out of psychology and out of our view of our fellow-creatures, animal and human, all notion of them as conscious beings, capable of awareness of things or impressions, of experiencing feeling, emotion, or effort.

The events I have recited occurred before the Great War. When that upheaval subsided, American psychologists began to get wind of certain Russian experiments which, now accessible in detail, have given great support and impetus to the mechanical psychology. For more than twenty years the celebrated physiologist, Professor Pavlov, has carried on in his special laboratory at Petrograd, with the aid of numerous colleagues, a very remarkable research into the phenomenon known as "the conditioned reflex." The essential facts established are as follows. If a piece of meat is held out to a hungry dog, his mouth waters. If a bell is sounded just before the meat is offered, and if this succession of impressions is repeated a large number of times, sooner or later the sound of the bell suffices to cause the dog's mouth to water, even if no food

be offered. Before the experiment the sound of the bell produced no mouth-watering; after a certain number of repetitions (twenty or more, often many more) it does produce that effect. The mouth-watering in response to the bell is called "a conditioned reflex." These experiments, varied in a hundred ways and carried out with a precise and admirable technique, are regarded as confirming the principle of the *sarbon*. They may be said to have taken their place beside Thorndike's famous experiments as the experimental foundation of the *sarbon* theory, the central core of the dogma that man is a machine and nothing more.[1]

A third series of experimental observations completed the tripod which supports the airy structure of the psychology most in vogue in America. John Locke and the other founders of modern psychology had asserted that there is nothing in the mind or the intellect but what enters by the channels of sense; to which Leibnitz had replied: "Nothing except the intellect itself!" The one party asserted that ideas get into the mind through the senses, and that mental life is nothing but the interplay of these

[1] Professor Pavlov, however, has written as follows: "It would be the height of presumption to regard these first steps in elucidating the physiology of the cortex as solving the intricate problems of the higher psychic activities in man, when in fact at the present stage of our work no detailed application of its results to man is yet permissible."

ideas, the word "mind" standing for nothing more than the sum total of the ideas. The other party asserted that the mind is something that has its own peculiar structure and modes of activity, its own organization, capacities, and laws of action; and all of these were held to be latent or potentially present in the inborn nature of the individual, to be as definitely laid down in his constitution as the colour of his eyes or the shape of his nose. There was joined a battle which still rages, with extreme partisans of both views still in action; while the majority of psychologists hold aloof, preferring not to touch a problem so difficult and so thorny. At first the issue was defined in the form, Are there innate ideas? Descartes had made the question one of prime importance by asserting that all men have an innate idea of God, and by finding in this alleged fact a proof of the existence of God. Locke had proved to his own satisfaction that there are no innate ideas, and that the idea of God, like all other ideas, is acquired, is impressed by experience upon the mind, likening the mind of the new-born infant to a smooth tablet (the *tabula rasa*) ready to take any impression or form that the circumstances of life may give it; "wax to receive and marble to retain." At the present day the Leibnitzian or constitutionalist view is held in many forms. There are those who, like Dr C. G. Jung, teach a view not unlike that of Descartes; they hold that the ways of feeling and

thinking of each race and of each man, in things both great and small, in religion and in philosophy, in science and in poetry, in the trivial incidents of every day and in the great crises of life, are largely, though not wholly, determined by the innate constitution of body and mind. The most moderate modern form of the Leibnitzian view holds that the individual man, like the individual animal, inherits at least certain more or less definite tendencies to think and feel and act in certain ways in face of certain situations, situations of a kind to which the race has become adapted through long experience of such situations. Such tendencies are commonly spoken of as instincts. The party of Locke is represented in an extreme form by those who deny that man has any such innate tendencies or instincts. And most of those who deny man all instincts deny him also every other form of innate capacity, aptitude, or talent.

This denial is founded on inference from the *sarbon* theory. If all that we call the mental life and behaviour of man is nothing but the play of mechanical reflexes, the innate basis of behaviour can be nothing but a number of inborn reflex arcs or *sarbons*. Some, like Thorndike, apply the term "instinct" to such inborn *sarbons*; but this is merely to confuse the issue, to perpetuate one of the most pernicious confusions of modern psychology. The word "instinct" properly expresses a conception of human and animal action very different from that of reflex action. The

two terms "reflex action" and "instinct" stand for two radically opposed theories of action, the mechanical and the hormic theories. The denial finds ready acceptance in America because it seems to give scientific support to a popular and peculiarly American dogma, the literal acceptance of the equality of all men. If no man has any inborn aptitudes other than a number of *sarbons*, then all men are born literally equal, and all the great differences we find between one man and another, or one race and another, are due to different environmental influences.

But the great dogma of the literal equality of all men has found its prophet in Dr J. B. Watson, who claims to have given it the status of a truth established by experimental science. Watson observed systematically a large number of young infants, and, like others before him, he found himself able to provoke only a very limited variety of reactions. He could make them kick, he could make them squeal, and he could make them smile; and that was all, apart from such simple "reflexes" as the closing of the eye or the swallowing of food. This failure to observe any other complex reactions than these three he has loudly announced to the world as establishing the dogma of the *tabula rasa*; and the American world has responded with loud shouts of praise. For here was the scientific proof of its favourite dogma, the equality of all men.

And Watson did not stop here. Combining

his great negative discovery with the theory that all modification of inborn nature is an acquiring of new *sarbons*, of conditioned reflexes, he boldly announced that he was prepared to produce from any human infants given over wholly to his tender mercies a corresponding number of human beings of any desired type, geniuses of the first water, mathematicians, musicians, artists, scientists, statesmen, executives, anything, in fact (other than theologians or metaphysicians), according to specifications given. In a world encumbered with a distressful excess of morons and criminals and but scantily supplied with men of genius, this was welcome news. The chorus of praise swelled yet louder. One great New York daily said of one of his books, "Perhaps this is the most important book ever written"; another asserted, "It marks an epoch in the intellectual history of man"; and, if Watson's claim had the slightest shadow of foundation, such praise were not excessive. For here was the promised realization of mankind's fondest dream, the dream of the perfectibility of man; the perfection of the human race was to be attained, not by long ages of blood and tears, not by painful struggles of self-discipline and self-development, not by centuries of slow evolution of improving forms of social organizations achieved by much thought, experiment, and self-sacrificing effort; it was to come suddenly and at once, if only we would put Dr Watson in supreme charge of a sufficiently

large and well-equipped State nursery in which all infants might be moulded to the types desired.

Such is the theory of human nature which has been rapidly becoming the foundation of the educational practice of America; a synthesis of three theories: the theory that intelligence is the effecting of a new mode of reaction in a purely random mechanical fashion (the *sarbon* theory); the theory of the conditioned reflex as the prototype of all learning; the theory of the infant mind as a smooth waxen tablet indefinitely susceptible to moulding by the hand of the educator. I say the educational practice of America is increasingly moulded by this theory: for, although New York City may truly claim to be the home and centre of this theory, its teaching has spread across the continent like prairie fire before which nothing can stand. Even the South, America's pathetic home of lost causes, her last refuge for piety and conservatism, is rapidly becoming mechanized, with cement roads and noisy silent-policemen in every town, plumbing in every room, and the *sarbon* theory in every school. A Southern teacher recently complained to me that, wherever he goes, he finds Behaviourism rampant in the schools, and that, because he cannot accept it, he finds himself regarded by his colleagues as hopelessly out-of-date.

Let us look at each of the legs of the tripod in turn, and in the reverse order of their mention above.

Watson's observation in young infants of only three complex reactions, kicking, squealing, and smiling, hailed by a multitude of iconoclasts as a great discovery, has *no bearing on the question it is supposed to have settled in the negative*, the question of the instinctive basis of human nature. The same method applied to young birds would "prove" that birds also have no instincts, no instinct to mate, to build, to sing, to migrate. And his claim to know how to produce to order and in unlimited quantity every type of genius is preposterous. Watson is by vocation an expert advertiser, and to the advertising profession much is permitted. In any other profession the man who made any similar claims would be generally recognized as a charlatan. His book may in truth mark an epoch in the intellectual history of America; but it is to be hoped that the epoch will be remembered as the low-water mark of critical judgment in America.

To sweep aside all the immense mass of evidence of the instinctive basis of human nature, accepted in all other countries by the highest authorities from Darwin to Freud; to pretend to close the door on all the fundamentally important problems of racial and individual peculiarities of mental constitution, just when these problems are becoming the centre of interest of European psychologists; to pretend to have finally established the long-discredited doctrine of the *tabula rasa*; and all this on the flimsy basis of a few negative

observations of young infants; this, I say, is a degree of childish presumption that could not flourish for a moment in any other country than America.

The second leg of the tripod, the theory that all learning, all intelligent adaptation of action, is the acquiring of conditioned reflexes, is more respectable. The work of Pavlov and his colleagues is deserving of all praise. But the conditioned reflex, though it is a reality, is something very different from an intelligent adaptation. The conditioned reflex is built up gradually by many repetitions: twenty is the minimum, and the number often runs above a hundred. And, if the conditions under which it is provoked be a little modified, it ceases to be manifested and seems rapidly to lapse. On the other hand, the intelligent adaptation, whether of man or animal, is often effected by a sudden flash of insight; and once achieved is likely to be repeated indefinitely under a widely varying range of similar circumstances, and with wide differences of means employed.

The first leg of the tripod, Thorndike's theory that intelligent adaptation is a perfectly random process, a happy conjunction of movements occurring accidentally among a series of such movements, this theory, though it has dominated American psychology for nearly thirty years, has not remained uncriticized. Professor Yerkes, the most distinguished and prolific worker in animal

psychology in America, has never accepted it and has shown in much of his work its illusory nature. Professor Köhler of Berlin, in his celebrated study of chimpanzees, has shown very clearly that it is not true of them. Professor Spearman of London has marshalled a vast array of experimental evidence to show that the theory will not apply to man, and has forced Professor Thorndike very near to an admission of the fact.

But it has been reserved for a young graduate, Dr. D. K. Adams, to deal the theory its *coup de grâce* by showing that the alleged facts on which Thorndike based the theory were fallacious observations and interpretations.[1] This he has done by repeating Thorndike's original experiments, observing with an open mind, and varying the conditions in such a way as to allow the subjects of the experiments an opportunity to use what intelligence they possess. Three years were devoted to this work in the psychological institute of Yale University, other allied forms of experiment being added. Neither Dr Adams's procedures nor his conclusions can here be stated in full. It must suffice to cite : " The experiments of Thorndike upon cats are examined and found to be inadequate to the conclusions drawn from them." Further, " The puzzle-box technique, as used by Thorndike and myself with the subject inside, has slight utility for the study of adaptive be-

[1] Comparative Psychology Phonographs No. 27. May 1929. Baltimore.

haviour." And in general Adams comes to the conclusion that the animal's success depends upon *insight* into the puzzle-situation and upon *foresight* of the goal to be achieved. "All learning may be said to involve the representation of the ends of acts at moments before their actual occurrence."

Dr Adams's fatal blow to the foundation of the *sarbon* theory has been quickly followed by another, hardly less destructive of it. To the International Congress of Psychologists (gathered at Yale University in September 1929) Dr K. S. Lashley, one of the highest authorities on the functions of the nervous system, presented an address as president of the American Psychological Association. Founding his conclusions upon a long series of very careful experiments on the brains of animals, he told the assembled psychologists that the reflex-action theory of all cerebral activity, which has so long been very generally accepted, must now be rejected, that all views of cerebral function are now in the melting-pot and must be completely revised.

Thorndike's conclusions, which for a whole generation have been the main foundation of the *sarbon* theory, are thus finally exposed as fallacious. The theory that man is a machine is left without a single leg to stand upon; it remains floating upon a cloud of metaphysical prejudice, upon the assumption that all events are mechanical. This assumption, in order to avoid the appearance of

metaphysical prejudice, is sometimes stated in a rather different form. It is said that, whatever the real nature of the events we observe about and within us, Science can deal with them effectively only by assuming them to conform to the mechanistic type. To this contention we reply by asking for the warrant of this dogmatic assertion, and pointing out that mechanistic biology has come to a deadlock and finds itself in a blind alley, from which it can escape to make new progress only by recognizing that biological events are essentially teleological. In insisting on the teleological or goal-seeking character of biological events, I do not mean that they are teleological in the sense in which Paley regarded a timepiece as teleological, the sense in which every man-made machine is teleological, but rather in the sense that in the living organism events occur according to that order which we apprehend most clearly in our own mental activities. In other words, in all living organisms something of the nature of Mind is immanent; our own mental activity is the highest expression directly revealed to us of a mode of activity which pervades all levels of the realm of life in their various degree.

I have already suggested that, when the theory that man is a machine and nothing more is successfully propagated throughout the mass of a people, we must expect disastrous results. Such a belief cannot fail to weaken, if not to abolish, the sense of individual responsibility, to spread abroad a

sense of the futility of all higher forms of effort, to make the enjoyment of the pleasures of sense seem the only acceptable philosophy of conduct; in short, to engender a moral materialism. It remains to point to some of the deductions from the machine theory and to their influence upon our social problems and activities.

Behaviourism, as taught in a large proportion of American colleges and as represented by Dr J. B. Watson and his many followers, is not content to figure as an abstract scientific doctrine. Rather, it draws its practical deductions and actively urges them upon a credulous public. I will refer only to three of the many spheres in which its influence is already great.

It openly and confidently treats all religion as mere illusion and superstition surviving from the prescientific age, and seeks to close the door to all further thought or inquiry in that direction.

In the sphere of domestic life its deductions are boldly applied. And here it does not hesitate to take over from the utterly incompatible teachings of the Freudian school whatever is most disturbing and destructive to traditional belief and practice. Tradition holds that the monogamic family is the foundation of the State and the institution most necessary and conducive to human welfare, happiness, and progress. Behaviourism attacks it at every point. The relations between man and woman it would reduce to nothing more than one means for securing sensual gratifications; and

those relations between the sexes are best which will produce the maximum amount of such gratification. Romantic love, marital fidelity, and pre-marital chastity for either sex, all these become absurd and pernicious survivals. Watson has foretold that within fifty years marriage will have ceased to be an American institution; and there can be little doubt that if his theory of human nature could be shown to be true, or if, in spite of its falsity, it should continue to spread as it has spread in the last decade, his forecast will be realized.

Some of those who, like Mr and Mrs Bertrand Russell, advocate complete sexual licence, still regard the cohesion of man and wife as desirable in the interests of their children, or rather of the children borne by the woman. But Watson will sanction no such old-fashioned nonsense. He has taken over from Freud the most regrettable and fallacious parts of his teaching, the theory of the *Œdipus complex*, and the dogma that all affection is a sexual manifestation; and he gives to these dogmas the peculiarly objectionable twist that the affection of a child can only be gained by stimulation of its sexual nature. For these and other reasons he regards the influence of parents, and especially of the mother, as peculiarly and inevitably pernicious to the child; and seems to hope to see all children brought up in State-supported behaviourist laboratories. Thus the American child, who too often is already, through

lack of wise parental care and companionship, a hard, self-seeking individualist, is in danger of being made into a ruthless savage wholly given up to the pursuit of material goods and pleasurable excitements.

Finally, the teaching that the feelings and emotions are utterly negligible cannot fail to have a brutalizing effect. It is notorious that in some of the European countries such teaching in regard to animals has made the people utterly callous to the sufferings of animals. Behaviourism confronts a more difficult task when it attempts to eradicate all kindly sympathy from American minds; yet, in proportion to its prevalence, it will not wholly fail of its natural effect in this direction. In short, it is both a product and a prime agency of that mechanization of human life which all Europe recognizes and dreads as of the essence of Americanization. "The next move in the advance of our civilization," writes the English author of a recent book,[1] "must be a campaign against the mechanization of life. . . . We are confronted by the possibility of a wilderness of Babbits, of a horrible, soulless, monotonous, factory and Ford-made existence, which will result in the decay of all the ripest fruit of Western civilization. . . . An urgent task of the present is to mobilize women for the war against the typification and depersonalization of life. . . . The main current of modern life sweeps our young womanhood with

[1] *Woman and Society*, by Meyrick Booth. London, 1923.

it into a vast mechanism of soulless, impersonal relationships. . . . The modern educational system has allowed itself, most deplorably, to become to a large extent a feeding pipe for this machine." But how can an educational system which explicitly founds its teaching on the dogma that men and women are machines do other than accentuate the present deplorable tendency ?

I have assigned a large part of the responsibility for the present state of affairs to Teachers' College, that large department of Columbia University which annually launches many hundreds of teachers upon their careers. It is commonly said that Teachers' College is Professors Thorndike and Dewey. Does then Dr John Dewey, America's most distinguished and influential philosopher, aid and abet the propagation of the materialistic doctrine we have examined ? In theory no, in practice yes. He has written a psychology in which the keynote is *habit*. He writes : " All virtues and vices are habits. . . . Habits . . . constitute the self. In any intelligible sense of the word ' will,' they *are* will. . . . Character is the interpenetration of habits." Of thinking itself he writes : " If it is not a part of ordinary habits, then it is a separate habit. . . . For practical purposes morals mean customs, folkways, established collective habits. . . . Yet all habit involves mechanization. . . . All life operates through a mechanism. . . . And to understand the existence of organized ways or habits we surely

need to go to physics, chemistry, and physiology rather than to psychology." Now Dewey does not say that life and mind are mechanism. He says that "all life operates *through* mechanism," and that habits "may have the support of a foreseeing and contriving intelligence," and he writes of "intelligently controlled habits" and of "creative invention."

But the average student, trained to accept uncritically the *sarbon* theory and the dogma that man is a machine, believes he knows very well what a habit is—namely, the expression of a *sarbon* acquired by a truly random process. He notes Dewey's statement that, in order to understand habit, we must go to physics and chemistry. And all Dewey's qualifying statements, which leave intelligence as a creative power quite other than an array of mechanized habits, go for nothing. He feels that Dewey's psychology of habit makes of human nature a mere bundle of habits and that, therefore, the mechanical theory which so conveniently solves all his problems has the countenance and support of this distinguished thinker.

There is another outstanding figure among the psychologists of New York: Dr R. S. Woodworth, head of the department of psychology in Columbia University. He is universally esteemed as a wise teacher and a true scientist. His *Psychology* is, I believe, more widely used as a textbook than any other. On which side in this great controversy

is his influence thrown? An examination of this *Psychology* can only leave one in doubt. It shows that Woodworth is a middle-of-the-road man. It is true that he repudiates as inadequate the absurd *sarbon* theory. But in every chapter he seems to be saying: "Come, we are all good fellows. Let us have no unseemly disputes. You are right and he is right, and all of us are quite correct. Go to—make more experiments and don't trouble yourselves about deep problems." This policy of avoiding troublesome items, of smoothing over deep-lying differences of theory, may, perhaps, be justified in a book designed for instruction of young students; though for my part I am convinced that the contrary policy, that of sharpening and defining all questions in dispute, is far more stimulating to young minds, and therefore to be preferred. Let us turn to a more technical exposition of Woodworth's position, such as we find in his essay in *Psychologies of* 1925. Here Woodworth appears as the exponent of *dynamic psychology*. He rightly insists upon the activity involved in all mental life, not only in processes that involve explicit voluntary effort, but also in all processes of perceiving, of remembering, of imagining, activity which determines the form of the response made by the organism to any stimulus. He recognizes that such activity is purposive and must be studied not only objectively but also by introspective observation. "Purpose is a real fact in human life, and, if not purpose, at

least striving toward a goal is a real fact of animal life as well. . . . Purpose is one of the phenomena which psychology must include in its story." Does, then, Woodworth here figure as an opponent to the mechanical psychology? Not at all. As in his other writings, he sits upon every fence, refusing always to come down even tentatively upon either side. Yet it may fairly be said that he preserves his precarious balance by keeping one foot on the ground on the mechanistic side. He nowhere ventures a word against the mechanical psychology, and is manifestly fearful lest in recognizing the purposive nature of human and animal activity he may lose his reputation as a strictly scientific psychologist. The problem of purposive action he turns over to philosophy, that of vitalism he assigns to cellular physiology, and, as a psychologist, he wipes his hands of all responsibility for these troublesome problems. He steadily refuses to give his readers a lead. There is nothing in Woodworth's writings to counteract the dogma so confidently taught by his colleagues, the dogma that man is a machine and nothing more; for him purposive action is a sequence of mechanistic causes and effects.

I venture to predict that, unless the psychologists of America can find the courage to bring their teaching into line with common sense and sound philosophy, their science will not long retain the popularity which it now enjoys in the universities. The good sense of the university

will rebel against a science which imposes annually on thousands of young students a view of a man which denies him all moral responsibility and represents all moral efforts as an exploded superstition that ranks with belief in lucky numbers and black magic. And the powers that control the financial bases of higher education will not continue to dispense large sums for the support of a science that produces no results of social value other than mental tests. The change I predict is already taking place in Germany. There the academic psychologists have long taught in the main a mechanical psychology ; and the social sciences have waited in vain for the psychology that shall form their indispensable foundation. Such sciences as economics and politics, comparative religion, mythology, linguistics, æsthetics, have long been stagnant for lack of such a psychology : for a mechanical psychology that ignores the purposive nature of man, the teleological nature of all his activities, is utterly incapable of serving as their foundation. This need, long urgent, has now become a consciously felt want and an explicit demand on the part of the workers in the social sciences ; and, since the academic psychologists still are slow to respond, representatives of the social sciences have begun to supply their own need. They put aside the strictly useless mechanical psychology as natural-science psychology and are proceeding to construct the kind of psychology they need, proposing to

distinguish it from the other kind by dubbing it "*geisteswissen-Schaftlich*" psychology (psychology of the sciences of the human spirit). This is a makeshift and unfortunate expedient; a second-best way of meeting the difficulty, of extricating psychology from the mechanistic blind alley. It can be avoided in America only by the franker recognition of psychology (or better still of biology as a whole) as an autonomous science which, instead of continuing slavishly and timidly to copy the physical sciences, must boldly exercise its unquestionable right to formulate its own working theories and fundamental postulates.

May the day soon come when American psychologists will recognize their right and their duty and will dismiss to the museum of scientific curiosities Behaviourism, *sarbons*, atoms of consciousness, and all the useless jargon of the mechanical psychology.

I have assigned a certain responsibility in this matter to the city of New York. This assignment is justified primarily because the teaching I criticize has emanated chiefly from the halls of learning of that city and especially from Columbia University, where the former head of the department of psychology, Dr M'Keen Cattell (who may claim to be the spiritual begetter of Thorndike and Watson), set that department upon the narrow and "strictly scientific" lines which have led to such deplorable results. But the responsibility lies more widely. New York is the financial

and intellectual metropolis of the nation, and whatever comes out of New York enjoys an immense prestige. The city is also the great publishing centre of America. Among the many New Yorkers active in the output of intellectual wares there prevails a sort of freemasonry—the tendency to reciprocal boosting that is expected of all good citizens of every American city. And this tendency has boosted the materialistic doctrine of human nature. It is *chic*, it is New Yorkish, to speak well of Behaviourism and to imply familiarity with the most esoteric Freudian doctrines, while treating all other psychology with silent contempt. Hence no self-respecting New York publicist can refer to problems of human nature without at least a pat on the back to Behaviourism and all its implications. And all this produces throughout the country an immense total effect. When the poor teacher in the backwoods of Michigan or Carolina reads in a great New York daily that a certain book makes an intellectual epoch, how shall he fail to bow down in abject submission ? How shall he sustain his own independent judgment to the effect that said book is less than worthless ? A plausible farrago of well-founded statements and half-valued theories, the admixture of truth being just sufficient to persuade the simple-minded to swallow the whole bolus ?

II

BEHAVIOURISM AND BEHAVIOUR

BY CHARLES C. JOSEY

It has been made clear in the foregoing statement that the writers of this book are not interested in Behaviourism in its broad meaning, which would embrace all of psychology; but in Behaviourism in its technical meaning, which holds that the only legitimate data of psychology are those things which can be seen or heard, or, better yet, only those things that can be recorded by an instrument. Since such states or attitudes as love, hate, fear, courage, pain, hope, loyalty, and aspiration cannot be so recorded, they are regarded by the Behaviourist as of no consequence. A spark of liberality might have caused him to admit that these attitudes are at least legitimate and interesting inferences, but his dogmatism regarding those things that can be "scientifically" studied has prevented this. Of all fundamentalists, the Behaviourist is the most narrow. He is not content to show that those things which can be recorded by an instrument are fundamental to his science, but insists that they are the only things of any consequence to the psychologist.

This extreme position is defended by the protagonists of Behaviourism on the ground that it increases the practical value of psychology. It is this claim that I wish to examine. Now any practical system of psychology should meet at least some of the following requirements: It should make possible greater accuracy in the prediction and control of behaviour; it should be helpful in the task of the moral elevation of man; it should deepen our appreciation of human nature; and it should increase our understanding of human nature. A discussion of Behaviourism in the light of the last requirement would lead to a consideration of its theoretical difficulties; and as these have been dealt with elsewhere, we shall limit ourselves to a consideration of "Behaviourism" in the light of the other requirements of a practical psychology.

Any consideration of this kind must be based on some system of psychology which serves as a basis of criticism. I shall therefore point out the psychological principles that guide me in my thinking about the practical consequences of "Behaviourism."

Any act of a human being, whether it be talking, walking, thinking, or fighting, is a product of the whole situation in which it occurs. Strictly speaking, there is only one whole—namely, the totality of being; but for practical purposes we isolate wholes of varying degrees of completeness, and these meet our requirements very satis-

factorily. As a simple illustration let us consider walking. I cannot explain an act of walking without taking into consideration the structure of the organism that walks and its motives. But equally true is it that I cannot account for an act of walking without taking into consideration the nature of the world in which walking occurs. If we lived in water, we would not walk, and if we lived on a perfectly smooth surface, we might slide along instead of walking. In order to account for walking, therefore, I must take into consideration not only the nature of the walker but of the surrounding world as well. Our emotional responses and thought processes must be accounted for similarly.

When Sleeping Beauty was awakened by the kiss of the prince, love was created. That love must be regarded as a product of all the relevant factors, which we may for convenience call the psychological situation. But for the nature of the maid love would not have arisen. Equally true is it that but for the nature of the prince no love would have arisen. Thinking furnishes numerous illustrations of this principle. Thinking is born when a person with the proper training and nature is brought face to face with a problem. Both the thinker and the nature of the confronting difficulty must be considered before the act of thought can be understood. Take a public speaker for example. His thought processes must be understood not merely in terms of his interest

and experience, but also in terms of the attitudes and values of his audience. Teachers make constant use of this principle. Before they can get their pupils to work to the greatest advantage they must first arrange the situation so that an interest in mastering the task will be created. In other words the psychological whole must be made such that out of it interest arises.

The concept of the psychological whole is valuable in directing our attention to the essential conditions for all human activity—namely, a self, which is a functional system in a larger functional whole. This concept emphasizes the functional unity of the whole, and therefore enables us to proceed with our work of analysing it with less danger of over-simplification. Accordingly we break up for the sake of exposition the psychological whole into its two most obvious parts, the self and its environment. We are then prepared to proceed with the analysis by seeking those characteristics of the self that are significant for understanding its behaviour. We do the same with reference to the environment.

In pointing out some of the traits of the self that are significant for our understanding of its behaviour, it should hardly be necessary to add that these traits are symptoms or revelations of the nature of the self as a whole. Yet at the same time these traits go to make up the nature of the self. This is true of all organic unities. To illustrate, the soundness of my heart is in no

small degree a symptom of my general physical condition. But the soundness of my heart plays no unimportant part in determining my general health. So it is with my mental states. These are expressions or revelations of my personality, but they in turn are important determinants of my personality. For example, my ideal of honesty is a reflection or outgrowth of my personality; but it in turn plays an important part in making my personality what it is, and any important change in it will have an important influence on my personality.

Any list of the aspects of the self, important for understanding and predicting its behaviour, should include the following: attitudes, beliefs, and evaluation of human nature. In everyday life we recognize the importance of the foregoing traits, and any system of psychology that neglects them fails to make full use of the resources at hand. There are some who minimize the importance of these traits on the ground that they are rooted in our affective nature and on the ground that our conduct is frequently inconsistent with them. That beliefs, attitudes, and evaluation are rooted in our affective nature does not show that they are unimportant. They, like all traits of an organic unity, grow out of the whole, but they are none the less important determinants of the whole. That we should frequently act inconsistently with them is not surprising. No one claims that they are the sole determinants of behaviour, but they

are notwithstanding important phases of one's personality, and are frequently the most important factors for the understanding of an act. For example, the belief that one's life is threatened may be the most important factor in making intelligible a crime. The belief that animals are soulless machines may serve to excuse and therefore to increase the cruelty shown them. The boy who has a reputation usually seeks to live up to his reputation whether it be good or bad. A member of a prominent and successful family is likely to place a valuation on himself that influences his conduct both desirably and undesirably. Where two different races live together, the belief that one is superior plays an important part in determining how they shall live together.

Similarly our beliefs about human nature and its place in the cosmos are important. It is not a matter of indifference whether we believe that we are revelations of the purposive nature of reality or that we are the accidental products of an indifferent cosmos. It is not a matter of indifference whether we believe that man is merely a complicated machine whose behaviour can be accounted for in terms of physics and chemistry or that man is a being with aims and purposes, and that he is at least in part responsible for their realization. In brief it is not a matter of indifference whether we have a view of human nature that exalts it or a view that minimizes its richness through reducing it to the level of unorganized matter.

In the light of the foregoing let us seek to discover how well " Behaviourism " meets the requirements of a practical psychology. Do the principles of " Behaviourism " enable us to predict behaviour ? Our answer is, No. The reason for this answer is that the " Behaviourist " takes too limited a view of the psychological whole in which the act takes place. Limiting himself to those things that can be recorded by an instrument, he is unable to take into consideration the hopes and fears, the aspirations and worries, the beliefs and attitudes of the agent, all of which are of value in enabling us to predict the behaviour of others and to anticipate our own. Their importance can be best shown by means of illustrations.

Four men were riding in an open car. One of the men in the front seat was chewing tobacco and frequently spitting. Frequently some of the spittle and tobacco juice flew into the face of one of the men in the rear seat, who did nothing more than wipe his face as the need arose. After some little time had passed the man who was chewing got out, but another man who happened to be chewing took his place. He too, like all tobacco chewers, had to spit. The first time he spat some of the spittle flew into the face of the man in the rear seat. This time, however, instead of merely wiping his face, he flew into a rage and threatened with a curse the man in the front seat.

How understand the behaviour of the man in the rear seat ? Why did he not resent the

thoughtlessness of the first man? And why did he resent so violently the thoughtlessness of the second man? His behaviour becomes more intelligible to us when we learn something of his interests. He was desirous of becoming county treasurer, and the first man who was chewing was the political boss of the county. For fear of offending him he said nothing. Now if he had told us in advance of his interest, and if we had known of the influence of the other man, we could have predicted with some assurance that he would not show in a violent manner his resentment regarding the behaviour of the county boss. We could not have predicted just what he would have done, but we would at least have had information of value in any effort to predict.

Likewise with the explosion that followed the spitting of the second man. Perhaps delicate instruments would have enabled us to discover that the man was on the verge of exploding, and that only the last straw was needed. But the same could have been discovered without the instruments. He might have told us how he felt, or we might have inferred how he felt on the basis of our general knowledge of human nature, gotten both by studying the behaviour of others and our own feelings. And this information would have been of great help to us in predicting that anything else that did injury to his feelings of self-respect would bring about a violent reaction. An account of his mental states would have served to

make his behaviour more intelligible, and information regarding them, whether gotten from the introspection of the agent or from our inferences, would have been valuable in enabling us to make predictions.

Another illustration will make this clearer. Here is a freshman seeking advice from a member of the registration committee. How can the man give him advice? Certainly before he can do so he must know something about the interest and ability of the freshman. These are inferred from knowledge of the freshman's past. Now there are at least two ways of learning of the past of another. One is through the records that have been kept regarding him, the testimony of others, and our own observations. The other is through the recollections of the person concerned. The former may be more accurate, but that does not justify us in discarding the latter method. Indeed, any knowledge that we may get from the former method needs to be supplemented by the recollections of the person in order that we may learn how that past appears to him, the importance that he attaches to different bits of it, and the way he feels concerning the whole. Accordingly the member of the registration committee rightly attaches much importance to the recollections of the freshman regarding his past.

The "Behaviourist," however, insists that the only things of importance in determining behaviour are those things that can be objectively

discovered. In so doing, it follows from what has been said, he deprives himself of information valuable both for understanding and predicting behaviour. The more orthodox psychologist, unlike the " Behaviourist," brings to bear all that he is able to learn about a given individual in all possible ways, and on the basis of this wider fund of knowledge attempts to interpret and anticipate the behaviour of others. In this effort to discover the character traits of a given individual he makes use of tests and all means that promise to be of help. It should be obvious that the more we know of a person the greater the chance of understanding and predicting his behaviour. Clearly then, to put it mildly, " Behaviourism " has not increased our ability to predict behaviour.

The " Behaviourist " makes much of the claim that his principles enable us to control behaviour and the development of character. This claim is not substantiated by the experience of those who are seriously interested in the formation of character. Any intelligent parent soon discovers that if he wishes to control the behaviour of his children he must first learn of their desires, fears, worries, and ambitions. What is true of parents is equally true of teachers in maintaining discipline, of psychopathologists in helping their patients to take a firmer hold on life, of social workers dealing with delinquents, of orators in influencing their audiences, of salesmen in selling their wares. In short, all who try to influence or control the

behaviour of others find that a most valuable aid is a knowledge of their anxieties, desires, ambitions, and prejudices. For example, here is a boy who begins with zest the tasks assigned him in school. But after a short effort he abandons the task and openly shows his indifference to the whole procedure. A study of that child showed that he took pride in his reputation for having a good mind, and that in order to keep his reputation he was unwilling to appear to undertake anything which he could not do well. Hence the first difficulty that arose was sufficient to cause him not only to cease all effort but to make light of the task and to pretend to be indifferent. With this knowledge of the subjective states gotten in part from the accounts of the child, the teacher was able to deal with the situation more effectively than she otherwise would have been. Yet the "Behaviourist," as a result of his scorn for all subjective states and of his blind worship of the stimulus, would deprive us of all these avenues of insight and control.

Our third requirement of a practical psychology is that it help in the moral elevation of human living. We are convinced that in this respect "Behaviourism" falls short. It is hard to say what view of human nature is generally accepted, but perhaps most people attach considerable importance to the aspirations, hopes, and fears of man, and regard human nature as endowed with a measure of spontaneity and freedom of choice.

According to the "Behaviourist" these are at best mere epiphenomena; they are similar to the creaking of the wheel on its axle. In themselves they have no more to do with conduct than the shadow of a runner influences his speed. The real determinants of behaviour, according to the "Behaviourist," are the structure of the organism and the forces that play upon it. No room is provided for spiritual values.

That the effect of such a view of human behaviour would not be elevating seems obvious. Certainly there is nothing in it to make for the moral heroism of such men as Savonarola or Socrates. We need not say that the beliefs of these men made them moral heroes. Many who have held similar beliefs have not impressed us with their heroism. But none the less their beliefs when seen on the background of a more complete biography stand out as important determinants of their behaviour.

There is little value in pointing to a man here and there who avows the principles of "Behaviourism" and who is none the less an ideal person. His character and ideals have been moulded to a considerable degree by a group that insists on the spiritual nature of man and on the moral significance of man's efforts. He is the beneficiary of a spiritualistic philosophy of life whether he consciously accepts it or not. But change the prevailing philosophy into a materialistic or mechanistic one, and what will be the

effect? Is it not more than possible that the shift in this direction in our high schools and colleges, in the popular articles on science, and in many novels is in part responsible for the increasing number of young criminals and for the feeling of futility that seems to characterize many?

Most of us have been reared in an atmosphere that stressed individual responsibility; it was impressed upon us that the making of our character and our future is our task, and we were given a cosmic view that stimulated our moral efforts. But the tendency of "Behaviourism" is to undermine each of these props of morality. It would teach the individual that he is not responsible for his conduct. If he acts criminally or in less anti-social ways, his heredity or early home life is blamed, not he. Since man's inner life has always been the citadel of the spiritual, the robbing it of all spiritual significance tends to leave us in a world indifferent to man's values and moral struggles. This cannot but influence human living.

That the acceptance of "Behaviourism" would seriously influence the behaviour of the mature adult is to be doubted. In the development of a personality there is a shift in the relative importance of the different character traits. Tastes become fixed, habits are strongly established, and many social bonds entwine the individual. These bind the individual to courses of conduct that are familiar and tried. But it does not follow from

the admission that the behaviour of an adult would not be seriously influenced by a change in his conceptions of human nature, that the behaviour of an immature person would not be ; nor does it follow that the *zest of life* would remain the same for the adult. The influence of a system of thought on the zest of life is a matter of utmost practical importance. What influence would the acceptance of the principles of " Behaviourism " have on our evaluation of an act and on human life ?

Valuation while affective depends to no small degree on the meaning we can see or weave about the object concerned. Consider, for example, an old lady knitting in order to escape the boredom of doing nothing. War begins, and there is a great need for knitted sweaters and socks. Now she knits not merely with contentment but with zest ; her whole life becomes richer and fuller because what she is doing now has some value. The same principle holds for all activities and proposed careers. Here is a young man preparing to become a physician. He is intelligent and applies himself, but all the time he labours under misgivings. Suddenly he gets a new appreciation of the profession for which he is preparing himself. He no longer sees it as a life of drudgery devoted to the care of people suffering from loathsome diseases, or of discontented people carrying continually their troubles to the physician. He now sees it as an opportunity to alleviate the suffering

of humanity, to keep the joy of living strong in young children, and to make healthier men and women. So viewed, his profession, instead of something to which he looks forward with dread, becomes something which elevates his own life and adds to its zest and meaning.

It is the same with our view of conduct. If all I see in the behaviour of an individual is a response to a stimulus of the same type as my response to dust in my throat, I have a view of life which lessens my appreciation of kindliness, love, and aspiration. How greatly my admiration of a person who apparently makes a sacrifice for another, even at the price of his life, would be dimmed I do not know. But that it would be affected I cannot doubt. My view of human nature would tend to cause me to view it as nothing more commendable than the flying of the moth into the flame. Our valuations are easily upset. A chance remark may rob us of the joy we had formerly gotten from a choice possession. Our interpretation of the source or cause of long tapering fingers may influence our æsthetic judgment concerning them. Likewise to reduce human behaviour to the level of that of unorganized matter does much to rob it of its significance and to lessen our appreciation of it.

Epictetus is reported to have said that everything has two handles. We now have before us two handles either of which we may take hold of in our effort to understand human nature. One

stresses the differences between man, the lower organisms, and unorganizing matter. This view stresses man's capacity for love, devotion, friendship, loyalty. These and similar traits it regards as the distinguishing traits of man. This handle leads to an increased appreciation of the noble and spiritual in man. The other stresses the similarities between man and the rest of reality. It irons out the differences between man and the lower orders of being, and in thus doing it tends to deprive us of much of the happiness and zest of life that comes from attaching due importance to man's spiritual nature.

Our view of life and of the universe therefore is not a matter of theoretical importance only. Such views profoundly influence our values and appreciations. They may add to the richness and fullness of experience, or they may lessen these by ironing out all differences between the high and low, leaving us in a homogeneous though drab and colourless world. In this respect "Behaviourism" falls far short, as it does in the more truly scientific interest of enabling us to predict, control, and understand behaviour.

III

BEHAVIOURISM A TECHNIQUE OF CONTROL, NOT A MEASURE OF VALUES

BY WINFRED ERNEST GARRISON

To the editor's invitation to contribute a chapter to this volume, I replied that I was not interested in participating in any general attack upon the behaviouristic psychology, since the merits of its method seemed to me to be at least in even balance with the fallacy of some of the conclusions which—illogically, as I believe—have been drawn from it. The Behaviourist as pure scientist, working with a body of data to which his laboratory methods are adapted, has contributed much to the understanding of human nature, and there is ground to hope that a further application of his methods of objective observation may develop useful techniques for the beneficial control of conduct. But the Behaviourist as speculative philosopher—which is the last thing he would admit being—attempting to define human nature wholly in terms of physical acts and to exclude as unreal all data except those which are amenable to his particular methods of observation and measurement, is quite out of bounds and is the enemy of psychology as much

as of religion ; for if consciousness is negligible or non-existent, there is no reason why anyone should study behaviour. Behaviour is significant only because there are elements other than behaviour in the human process, just as gold is valuable only on condition that there are other things which can be bought with it.

The term Behaviourism, although still comparatively new, has become, through much careless use, almost as slippery as an old coin, and the image and superscription which are proper to it have been so nearly effaced that counterfeits easily circulate in its place. Properly speaking, it describes a method of psychological research and laboratory procedure, the essence of which is the application of exact measurement to the physical reactions of organisms to stimuli and the manipulation of the stimuli to alter the reactions. The organism which is subjected to this form of interrogation and education may be any living thing, from a polyp to a philosopher. It might even be a plant, for plants as well as animals respond to stimuli, though more slowly and with less varied reactions to the narrower range of stimuli to which they are sensitive. But since even those thinkers who have banished thought from the field of their concern have not as yet manifested much interest in the psychology of vegetables, the behaviouristic method of investigation may be said to be confined to animals, so far as it relates to psychology.

The stimulus may be any excitation or situation which leads the organism to do something or to alter what it is already doing. It may be a sight, a sound, a touch, a taste, or a smell, or a combination of these. It may be something which causes the organism to approach, or to recede, or to perform some more complicated adjustment. The main point is that it must be something which will produce observable and measurable action. It is hard to state the matter with that perfect objectivity which the strictest sect of the Behaviourists insists upon. It is not quite accurate to say that stimuli may be sights, sounds, tastes, and so on, for seeing, hearing, and tasting are states of consciousness, and we are trying to leave consciousness out of account. It is no concern of ours, as behaviouristic investigators, whether or not the rat in the maze smells the cheese, or whether or not the dog hears the bell in the famous experiment dealing with the reconditioning of the response of his salivary glands. The stimuli are the objects, not the sensations, which we may carelessly assume that these evoke.

Similarly, the responses which are the objects of observation and study must all be overt physical acts or changes in physical condition. They may be manual, verbal, or visceral acts. Fear and anger are not responses; but running away, fighting, quickened heart action, dilated or contracted blood vessels are. The feeling of desire which an animal may have for an article of food

placed just out of reach and the mental processes (if any) by which he arrives at a successful method of getting it are alike hidden from direct observation, but we can observe and describe the acts which he performs under these circumstances, and we can measure with a stop watch the time it takes for him to solve the problem on the first, second, third, and each successive trial, until it has ceased to be a problem and has become a habit.

Naturally, the use of this method implies the conviction that the overt and observable actions which are studied are significant and that, when considered by themselves and apart from other factors which are not susceptible of similar treatment, they constitute a coherent and intelligible body of data. It is not necessary to assume or assert that no other data exist. A chemist would be no better chemist for asserting that a volume of poetry had nothing in it except what he could describe in terms of the chemical composition of its paper and ink. Unquestionably, he can go no farther than that—as chemist. And a chemical treatise on the composition of paper and ink would be cluttered up with irrelevancies and diverted into unprofitable channels if the chemist concerned himself about the poetic form and lyric beauty of what was printed on the paper. The case of a student of behaviour is much the same. Loyalty to his own specialty does not require him to insist that there are no realities except those which occupy his attention. In fact, as soon as

he begins to define the nature of reality, and set bounds to it, and exclude from it the phenomena of consciousness, he ceases to be a good Behaviourist. He ceases to be a good scientist of any sort, and becomes a speculative philosopher. And, as usual when one practises speculation without realizing it, he practises it very badly.

Genuine Behaviourism is, in fact, not an "ism" at all. It is an "ology." In its legitimate, because truly scientific, aspects it is a study of a particular body of phenomena, as are the sciences of biology, physiology, and geology. Like them, it cultivates its own field without concerning itself too much about what may be on the other side of the fence, and especially without indulging in any unscientific dogmatisms to the effect that there is nothing on the other side of the fence. As between a scientific Behaviourology (a terrible word, I admit, but a more accurate one than Behaviourism) and a speculative psychism, I would be for the former. That is to say, a scientific study of the conduct of human organisms is worth more than any bare theory about the nature of the psyche.

Behaviourism is not really a form of psychology. At its best it is a supplement to it; at its worst, a substitute for it. At its best it is a study of how bodies work; at its worst, a theory that nothing exists and works except bodies.

The important service which the behaviouristic method of investigation renders consists in

discovering correlations between those external situations which act as stimuli and the nervous and muscular responses which, in the aggregate, constitute human behaviour. Not much progress can be made toward an intelligent control of conduct until there is some understanding of the sequences of natural causes and effects in this field. So long as conduct is thought of as a random succession of acts dependent upon the whims of a wholly undetermined volition, not much can be done about it. We can scold our children, but we can scarcely train them. We can punish crime, but we can scarcely prevent it. We can issue exhortations and emit emotional appeals on behalf of a better life, but the percentage of successful results will be not much greater than it would be if these things were left undone. Any given type of behaviour is a skill to be taught, and learned, by the utilization of specific situations which have been shown by experience to be conducive to the desired end; not something which can be inculcated wholly by argument and persuasion.

It is of the utmost importance that this scientific view of conduct be given a larger place in education and in child-training than it has had in the past. There are also wide fields for its application in all sorts of remedial and corrective work in criminology, in dealing with juvenile delinquents—in short, wherever human beings are to be conditioned to make adequate and satis-

factory responses to new aspects of their environment, and wherever they are to be reconditioned so that such responses may be established in place of undesirable ones which they have already acquired. *Human* beings, I said, but the methods are equally applicable to animals other than man —more obviously and completely applicable. Probably no one ever tried to train a dog or a horse without, unconsciously in most cases, making use of the kind of technique which may be refined and perfected by a scientific study of behaviour. The greater part of the experimental work of Behaviourists has been done upon animals and young infants, whose behaviour seems quite evidently to be just *behaviour*. That is to say, with subjects of these two classes it is relatively easy to eliminate from consideration the mental and emotional accompaniments, rudimentary at best, and concentrate upon the co-ordination between stimulus and physical response.

Behaviourists have rendered a service by insisting that there is more similarity than has been supposed between the processes by which animal and infant activities are determined and those by which adult human actions are determined. Conduct is the sum total of learned reactions to environment. If a child at ten or a youth at sixteen develops objectionable traits, these are not to be accounted for as outcroppings of qualities inherited from a ne'er-do-well grandfather or as spontaneous manifestations of his own

wilful and unregenerate nature. The child and the youth do what they have learned to do; but they have learned in a school with an extraordinarily large and miscellaneous faculty and a curriculum including many unedifying branches.

Some follies and exaggerations may perhaps be charitably allowed to those who are seeking to impress upon us the indispensable truth that behaviour does not just happen at random, and is neither inherited from ancestors nor created out of nothing by the independent fiat of the individual's will, but is produced by definite though intricate causes. To deny the reality of consciousness, to consign thought, emotion, will, and the whole ideational life of man to the limbo of illusion, appears to me to go so far in the direction of madness that it is scarcely possible to believe that the more extreme "metaphysical behaviourists" believe what they say. Perhaps they mean that the phenomena of consciousness do not exist as data which their methods can utilize. In that sense a botanist might deny the existence of the stars and an astronomer ignore the flowers. Passing, for the moment, the question as to what they do mean by such statements, I insist only that no metaphysical folly, no speculative *obiter dicta* in defence of a materialistic scheme of things, need deter us from accepting the valuable insights which Behaviourists have given us and being grateful for them.

There was not much chance of understanding

the motions of the stars so long as it was supposed that each one was dragged around its orbit by an angel operating on a flexible time schedule subject to variations dependent upon the pressure of his other business, his impatience to get to the end of his run, or his pleasure in loitering along the moonlit path on a clear night. A science of astronomy could not well start until the element of personal whim had been eliminated from the phenomena which it was proposed to study.

The parallel between the behaviour of heavenly bodies and that of human persons is good only if not pressed too far. Argument from analogy is always tricky. Men, women, and babies are (in most cases) neither angels nor stars. There are two defects in the comparison if it is used to support the contention that the study of human behaviour may become a science as exact as astronomy so that conduct can be predicted and controlled with precision. One is that man is not all behaviour, in the sense in which Behaviourists use the term, and the part of him which is not behaviour exercises a strong influence on his behaviour. The other is that, even if it could be assumed that men's actions were completely determined by the learned responses of their bodies to physical stimuli, the forces and factors involved are too complicated for exact computation. Considerable industries (such as they are) are based upon the fact that it is not humanly possible to foretell upon what number or colour

the little ball in a roulette wheel will stop, and yet no one denies that the issue is determined by purely mechanical factors. When one considers that, even if human behaviour be viewed as the resultant of objective stimuli acting under rigid law, still it is the resultant of so infinitely many stimuli operating cumulatively from infancy onward, it is obvious that the prediction and control of behaviour can never be comparable in simplicity and accuracy to, let us say, rolling a ball down a bowling alley.

In practice, the behaviouristic method has been applied chiefly to the study of responses to artificially detached stimuli rather than to total situations as they are found in the complex stream of experience. There is no reason why this should be so, except that it is easier to set up experiments of that sort. But from this source a certain unreality creeps into the results, in spite of the realistic claims that are made; for stimuli never exist detached from a matrix of other stimuli. The vivid and focal point in a stimulating situation is always surrounded by a margin, or fringe, of other circumstances which exercise a considerable, and often perhaps a determining, influence upon the resultant response. If you are pulling a sled by a rope, but a hundred other people are also pulling it in various directions by strings, the resultant movement cannot all be accounted for by the direction and force of the pull on the rope. The pull on the strings might

completely neutralize the pull on the rope. Gulliver discovered something of the sort when he found himself effectively pegged down by a web of pack-thread. The Gestalt psychology is an attempt to correct this defect of fictitious simplification in considering responses to artificially isolated stimuli rather than to complete situations. Just what effect this will have upon the methodology of behaviouristic experiment has not yet been determined. It will certainly complicate it, but there is no apparent reason why it should invalidate it.

To say that the understanding and control of conduct involves the recognition of certain mechanisms which have hitherto received less attention than they deserve is very different from saying that the whole process can be viewed as mechanical. It is only by making this distinction that one can fairly credit what is commonly called Behaviourism with its merits and charge it with its defects.

Its merits, as already indicated, lie in the fact that it has not only suggested the possibility of new methods of control through " conditioning " the human organism to make desirable responses to stimuli which would otherwise provoke undesirable responses, but has actually gone a long way toward developing such methods. This concept of " conditioning " is invaluable. Perhaps one ought not to speak of a behaviouristic concept, for a concept must exist in consciousness if at all,

and if there is no consciousness there cannot be any concepts. It is hard to talk behaviouristically all the while. The Behaviourists themselves can't do it. They are constantly using terms which imply the consciousness which they deny. But let that pass. What I mean is that there is great value in that pattern of procedure the characteristic and consequence of which is that one reaction to a given stimulus may be substituted for another, without any appeal to motives or other ideational processes, by relating this given stimulus to another which already produces the desired response. This formula or pattern is immensely important, for it suggests a technique by which, in many cases, it is possible to get people to do things—that is, to control conduct.

The defects of Behaviourism, as it is expounded by its most widely known advocates, may be grouped under three heads: First, behaviour is not explicable by reference solely to objective situations physically present at the time of the observed response. Second, no motive for control is provided, and no method for the valuation of any proposed objective of the processes which it sets up. It is this absence of any provision for the recognition of values which constitutes the most obvious and fatal defect of the system when it declares itself independent of all other types of procedure. Third, it easily passes over into a materialistic philosophy which, while no proper part corollary of true Behaviourism, often receives

the sanction of its spokesmen and the benefit of its prestige.

In the first place, then, behaviour cannot be explained or controlled with sole reference to observable physical conditions and the mechanical interplay of physical stimulus and bodily reaction and without taking into consideration the phenomena of consciousness which extreme Behaviourists declare illusory and negligible. It seems obvious enough that this is so, and it would not be necessary to labour the point if the Watsonian type of Behaviourist did not so frequently and so baldly assert that all thought, feeling, purpose, and other activities of what may, tentatively at least, be called mind, must be left out of the picture as irrelevant, incompetent, and immaterial —especially immaterial, for only the material is admitted as real. But when these are left out of the picture, there is no picture left, nor anybody to look at it if there were.

Consider a simple case in which behaviour is controlled by factors which are present in consciousness but not in the immediate physical situation. A little after noon. I suddenly remember that I have an appointment at one o'clock, break off the sequence of my routine responses to the stimuli supplied by the books and papers on my desk, and begin to produce a train of behaviour not to be accounted for on any mechanistic theory without making assumptions that go so far beyond the boundaries of knowledge that they are less

dependable than any metaphysical speculations about the nature of mind. It is raining and cold. Normally I react by way of repulsion to both rain and cold; nevertheless, I go out in them. There is food on my own table, and I have a distinct and positive food-tropism; but I turn away from this immediately available nourishment on the dubious chance of worse food farther off and later on. The company which I can see already assembling at my table is congenial, whereas the man I am to meet is a bore and I know it. Besides, I am well assured from previous experiences with him that he is not going to do anything for me; on the contrary, he will want me to do something for him. Nevertheless, I leave good company for bad and go to keep the appointment. Nothing binds me to this course except a feeling that, having let myself in for it in a moment of weakness, I ought to keep the engagement.

Upon what mechanistic scheme can such behaviour be accounted for? Upon none that I can imagine. To say that a prejudice in favour of keeping unfortunate promises is negligible because it can be known only by introspection—that is, not at all by a Behaviourist—is to eliminate the only thing that counts. To make my action in this case merely the mechanical sequence from a set of physiological, and especially neural, processes, is to fall back upon something that is just as invisible and intangible as consciousness itself; for no laboratory scientist has ever seen, isolated, or

measured any physical process which is specifically related to the keeping or breaking of promises. To turn away from the series of ideational activities, or acts of consciousness, which seem to have led me to leave food to keep a rendezvous with a pest, and try to account for this unnatural conduct mechanistically, is to turn, not from the unknown to the known, but from the known to the unknown.

The trouble is that a certain class of scientists proceed on the assumption that whatever can be called physical is, *ipso facto*, either known or at least knowable, while everything that is not physical is, in the nature of things, unknowable. So certain Behaviourists have a lovely time making merry over the folly of all who employ such concepts as "soul" or "consciousness." No one has ever touched, seen, heard, tasted, or smelled "consciousness," so consciousness and all its phenomena must be left out of account! Yet there are a number of things that eye hath not seen nor ear heard, which nevertheless command the respectful attention of scientific minds. I asked a group of medical research men the other day how the tendency to longevity in certain families is transmitted from father to son. "O," they said, "that is a unit characteristic." They were quite satisfied with this answer. Though they had never seen or touched a unit characteristic, and never hoped to see one, they were perfectly willing to make use of the concept because,

without it, the things they could see and touch did not make sense. Every science is constantly running up against the invisible and imponderable, but most scientists are wise enough not to affirm that reality ceases at the point where their eyesight fails, and some of them have extended the boundaries of their knowledge a considerable distance into the region of the unseen. Still beyond that limit lies an area toward which they maintain an attitude of respectful ignorance.

But not so with the ultra-behaviourists. They not only rule out as unreal those mental phenomena which are the only things in the world of which we do have first-hand knowledge, but they do it by applying tests of reality which would also ruin several other sciences, including physics.

In the second place, the unscientific type of Behaviourism which, in the name of science, rejects consciousness and the whole ideational life of man, finds itself bankrupt for lack of values and motives. Granted that it can give us techniques for the control of conduct. Why should we control conduct? What difference does it make whether conduct is controlled or not? It is true that we ourselves have been conditioned to react unfavourably toward certain types of behaviour—for example, lying and theft. It may be possible to recondition the liars and thieves so that they will no longer annoy us by these forms of conduct, and, within limits, we can. But it is a great deal of trouble to do that, and almost

everybody reacts unfavourably to trouble. So why bother about it? Why not take the alternative course of reconditioning ourselves so that we will not mind if people do lie and steal? We already have a good start in that direction. There are situations in which these forms of behaviour provoke little or no unfavourable response. Some kinds of untruth and peculation are socially approved, such as deceiving an enemy or commandeering his property in time of war. We might extend the range of this tolerance by educating ourselves to react with smiles and other complacent gestures, "manual, verbal, and visceral," toward all lying and theft. In matters of bodily health it is considered unimportant whether malignant bacilli are excluded from the organism or the organism is immunized by conditioning it to such a degree of tolerance that the acts of the bacilli are no longer malignant. If conduct can be equally expressed in terms of stimulus and conditioned reflex, the same should be true in this field.

It is entirely conceivable that certain simple bodily activities, in man as well as in animals, are the result of purely mechanical tropisms, or even that such machine-like responses constitute the raw materials out of which all behaviour is made, and it is important to utilize all that can be learned of these mechanisms in our efforts to adjust them to desired ends. But there can be no desired ends if nothing exists except the unconscious mechanisms. What is needed is some body of values and

some means of apprehending them. Behaviourism breaks down when you try to get it to answer the question, Why should one do this rather than that? It breaks down not because there is anything the matter with its method for the purpose of investigating those matters to which it is applicable, but because this is a matter to which it is not applicable.

Mr Watson sums up the Behaviourist's programme thus: "The Behaviourist puts the human organism in front of him and says: What can it do? When does it start to do these things? What can it be taught to do? What methods shall society use in teaching it to do these things? With this as subject-matter, psychology connects up immediately with life." Quite so. And it was a connecting link badly needed after all the generations through which the introspectionists had been arguing with observing, guessing at half and multiplying by two, and invoking "instinct" to cover a multitude of mysteries and a mass of ignorance. But the limitations of the procedure which Mr Watson outlines with such persuasive simplicity are quite obvious. Why should society be interested in teaching the human organism to do "these things" rather than other things? Why should it teach anything at all? Any deliberate effort to change a mode of response is a confession that there are more things in the world than modes of response. "Behaviourism is a natural science that takes the whole field of human

adjustments as its own. It is the business of behaviouristic psychology to be able to predict and to control human destiny." But again—adjust it to what and control it to what end? Every preference for one unrealized objective rather than another is itself a phenomenon of consciousness rather than of mechanism.

A mechanistic philosophy which eliminates consciousness also eliminates "ought," "wish," "like," and "try." Machines never try. We sometimes speak of them as though they did. We think of an automobile motor as struggling to make the grade. But that is mere anthropomorphism. The motor does not care whether it makes the grade or not. Much less could it conceive an ambition to reach out and teach other motors how they can open their own throttles and make the grade. There is no trying about it for the motor—simply one explosion after another, quite purposeless so far as the motor itself is concerned; and quite purposeless so far as its driver is concerned if this behaviour also is simply one explosion after another.

In the third place, Behaviourism has lent itself, quite gratuitously, I think, to a mechanistic and materialistic view of the whole life process. It is not necessary to discuss this at length. Some recent writers who seem at first glance to support this theory do not actually do so. For example, Prof. C. Judson Herrick, in *The Thinking Machine*, asserts quite baldly that man is a

machine and that thought is a product of machinery. This sounds quite stiff, hard, and mechanical. It suggests the old statement about the brain secreting thought as the liver secretes bile. But as his argument proceeds, he reads into the word "machine" everything that one at first supposed that he was excluding. If we define man as a thinking machine, then we have also defined machine as the kind of entity that can think; and as we have a more intimate and definite knowledge of thought than we have of machines, what we have really done is to refine machines in terms of thought rather than thought in terms of machines.

If we are going to use words in anything approaching their established sense, every machine is a part of a situation larger than itself. It neither makes itself, drives itself, nor places any value upon its own services. Every machine from the simplest to the most complex, from a grubbing hoe to a Hoe printing press, includes three points of contact with a world outside of itself: a place where power enters, a place where it is guided or controlled, and a place at which it delivers its power or product. No machine has the power of repairing itself, reproducing its kind, adapting itself to novel situations, or having its actions determined by future or physically remote conditions. To say that a structure which does all of these things is a machine, or to say that the whole world is a machine, is to read into the word a meaning

which does not belong there. But it is to such devices that one is impelled who undertakes to defend a completely mechanistic scheme of things.

Psychologists of the behaviouristic persuasion seem, in their zeal to mechanize completely the patterns of human life, to be in the position of persons who have been in inordinate haste to get on a train which turns out to be going in the wrong direction, or like the traveller who made a dangerous flying-leap to catch a ferryboat—which was just coming in instead of going out. The de-mechanizing process is going on in physics as rapidly as the mechanizing trend in this branch of psychology. Perhaps these Behaviourists are only the irresponsible subjects, or victims, of an unconscious tropism which draws them toward mechanistic analogies. Indeed, it must be so if there is no consciousness. But if it is so, they are turning toward a setting sun. There was a time, in the seventeenth and early eighteenth centuries, when men of science were stirred by the hope that the whole universe might soon be explained in terms of a few simple laws of motion and some mathematical formulæ. The development of biology wrecked that naïve hope, and physics itself no longer cherishes the simple delusion—which Newton himself never shared—that Newton's laws, with perhaps a few slight refinements, would explain what God and man is. Says Dampier-Whetham, in the preface to his recent *History of Science*: "Meanwhile

physics, which for so long sought and found mechanical models of the phenomena observed, seems at last to be in touch with concepts where such models fail, with fundamental things which, in Newton's phrase, ' certainly are not mechanical.' "

I revert to the statement that the scientific study of behaviour is not properly an " ism " but an " ology." An " ology " is a branch of science dealing with a particular class of phenomena which, for purposes of convenience and because no one person can study everything, are delimited from other phenomena by whatever frontiers best serve that practical end. It is not necessary that the frontiers be sharply drawn or heavily guarded, and often there is a borderland which is occupied jointly by two or more sciences. Sometimes the border strip of double sovereignty is rather narrow, as that between plants and animals ; but botanists and zoologists do not quarrel violently over the jurisdiction. Sometimes it is so broad a zone that there is room and need for another science to occupy it, as in the cases of biochemistry, astrophysiological psychology. These and all other sciences are " ologies," whether those syllables occur in their names or not.

The science of behaviour belongs in the same class. When it studies the phenomena of behaviour it is a true science and performs a valuable service. But when it tries to live up to the " ism " in its name, it gets out of bounds as a science and does what all " isms " do—launches

into unprofitable speculations as to the nature of ultimate reality. In this field the expert scientist flounders as an amateur philosopher. It is because so many Behaviourists have done just this that the real value of their contribution has been obscured.

Every science must presuppose the existence of areas of reality outside of its own special field to give setting and significance to its investigations. The dietitian studies diet, but if nothing existed in the world except diet there would be no need to study it. The economist studies the production, exchange, and consumption of commodities, but these would have no meaning apart from human desires and satisfactions which the economist does not study but takes for granted. The student of behaviour can claim no exemption from this general law. Behaviour, as a body of objective physical phenomena, has not the slightest significance except as it is related to personal values which cannot be stated, even in the simplest terms, without employing a set of categories of an entirely different order.

IV

BEHAVIOURISM'S SILENCE AS TO HUMAN VALUES

BY ROSS L. FINNEY

THE essential characteristic of Behaviourism is its laudable ambition to apply strictly scientific methods in the field of psychology. But precisely from that ambition arises its limitations and mistakes, since there is a radical fallacy involved in the assumptions underlying it. This fallacy is that its blind-spot falls upon certain epistemological fundamentals, and especially upon their implications. For there are *two* sorts of cognition: cognition of *objective* reference, and cognition of *subjective* reference; and of these two only the first furnishes data for science. To the data of *subjective* cognition the assumptions and techniques of objective science do not apply. It is by ignoring certain important implications of this epistemological distinction that the Behaviourists have let themselves in for a somewhat ungrateful disparagement of their good intentions and their contributions.

It should never for a moment be forgotten that epistemological considerations are fundamental to

the grammar of science. Probably no single book has been more generally read in recent years by scientists in all fields than Pearson's *A Grammar of Science*; and that book is nothing more nor less than a treatise in epistemology. It treats the question of how objective reality is knowable through and by means of sensory experience, and what postulates are presupposed in the acceptability of sensory experiences as data for science. Of recent months Eddington's *The Nature of the Physical World* has, in some quarters, been hailed as quite the scientific book of the hour; but it, too, is a restatement of epistemological principles set forth a century and a half ago in his *Kritik der reinen Vernunft*, by Immanuel Kant, and reiterated in America a generation ago by the Boston philosopher, Borden P. Bowne, in his *Theory of Thought and Knowledge*. To imagine that epistemology is irrelevant to the grammar of science is to betray unfamiliarity either with the content, philosophical background, or practical implications of that grammar.

But Karl Pearson's *A Grammar of Science* is only the first volume of what might well have been a two-volume work; the second volume of which must be written and applied before we can hope to clear away the present confusion about the possibilities and limitations of science in the mental-social fields—in fact, before there can ever develop any science, or the equivalent thereof, in those fields. At present the confusion is discon-

certing. On the one hand, there is the charge that psychology and the social sciences have not yet been reduced to science, with the insinuation that they never can be. On the other hand, there is going forward much eager, zealous work that aspires to be scientific, but with methods, results, and by-products that are too often little short of ludicrous. The insight is now well overdue that this confusion is inherent in the failure to distinguish epistemologically between two wholly different sorts of knowledge. If Behaviourism is contemporaneous psychology in the awkward posture of standing on one foot, it is because of failure to see the implications of this important distinction.

Our argument requires an initial emphasis upon this distinction. There are two sorts of reality—namely, *things* and *values*. There are *objective* entities in time and space, such as sticks, stones, dogs, folks, and so forth; and there are also *subjective* entities in consciousness and feeling, such as fears, likes, appreciations, and the rest. Entities of the second sort are just as real as those of the first. But the one sort are out in the world, quite independent of experience; whereas the other have their existence nowhere except within experience itself.

The distinction is clarified by observing that we are equipped with two distinct (though articulated) nervous systems, one for each kind of knowledge. Through the cerebro-spinal nervous

system, including the sense organs, we get our knowledge of objective *things*; through our autonomic nervous system we get our knowledge of subjective *values*. And if the difference between these two kinds of knowledge forces nature to provide two different apprehending instruments, so does it likewise challenge scholarship to devise and employ two wholly different techniques of research. For subjective values are not to be studied by the techniques of objective science, any more than they are to be experienced through the cerebro-spinal nervous system.

Now each of these two sorts of knowledge involves different epistemological postulates. Consider first the postulates of objective cognition. What is it that happens when one perceives an object, say a tree? The tree does not enter one's mind. Not even does the image of it do so; to talk such nonsense betrays a naïve attempt to picture the essentially unpicturable. What really happens is that the mind creates an idea within itself, which the mind uses as representing the tree. Here is one of the most awe-inspiring mysteries in nature: how can an *idea within* the mind give us knowledge of a *thing outside* the mind? What proof have we that this "objective reference" of experience is valid? The fact is, we have no proof; we have to *assume* that cognitive experience *is* knowledge. And this is *the first postulate of objective cognition.*

The second postulate is that the object observed

is *identical* for all experiencers. And the third is that objective experience which other observers cannot corroborate is but illusion. One is merely "seeing things" if no one else can see them.

Contrast the postulates of *subjective* cognition. When one experiences a feeling or value—*e.g.*, of pain, of gustatory pleasure, or of artistic appreciation—the feeling is definitely thought of as *within* the self. The thing occasioning the feeling may be objectively referred; but that is a wholly different matter. So far as what the *autonomic* nervous system apprehends, there is no objective reference. Thus the first postulate of objective cognition is absent entirely from subjective cognition.

Instead of the second there is something very different. In the case of feelings we postulate nothing more than that they are *similar* in different experiencers. If two persons are pricked with a pin, there are two separate pains, one by each person. Moreover, we have no means of proving that they are even similar pains; that we have to assume.

As for the third, it too is entirely absent; for in the case of subjective cognition verification does not depend at all upon corroboration. A feeling is real for the person experiencing it, no matter whether anybody else ever had a similar feeling or not. If George likes olives (or the Ninth Symphony), that is his business; if John does not, there is no ground for argument. Feelings are strictly solipsistic.

This prepares us for the implications of these postulates in a so-called grammar of science. The postulates of *objective* cognition are always implicit in scientific research. In other words, data *for science* are conceived in terms of these postulates. A datum is, first, an object of sensory perception; it is, second, a self-identical entity common to all observers; and, third, its reality is verified by agreement among observers. *Things*, on this criterion, are data for science; but *values* are not, because in our knowledge of them these postulates are not implicit. George's feeling of pleasure in olives (or the Ninth Symphony) is not a datum for science because its reality cannot be verified by any other observer; it is an entity only to and for the experiencer, and it exists nowhere except *in* his experience. In short, it is strictly solipsistic; and solipsistic is the exact opposite of that objectivity to which science aspires.

Similarly, there is no such thing as a scientific generalization in the case of values; and just because they are solipsistic. As pointed out above, each person's like or dislike is valid for him. If George likes olives, olives really do taste good to him; and how John feels about olives has nothing to do with the case. So long, therefore, as persons differ about the pleasure of the taste of olives, no generalization about the goodness or badness of the taste of olives is possible; for a scientific generalization carries in its very nature

the implication that it imposes itself upon everybody.

In other words, the feelings and evaluations of *subjective* cognition are *not* data for science because they are solipsistic. This is to arrive by way of the profundities of epistemology at the simplest of propositions—namely, that mere personal feelings are not scientific because they are purely subjective. You cannot make a science out of anything we are so sure of as our own feelings!

With all this it is probable that no one would be in more hearty accord than the Behaviourists themselves; for, as stated at the beginning, their dominating aim and aspiration has been to render psychology strictly scientific. Recognizing quite clearly this distinction between subjective and objective, they have insisted upon devoting themselves exclusively to the study of behaviour, because behaviour alone is objective. They refuse to interest themselves in thoughts and feelings as such. Behaviourism has no place among its categories for the concept of purpose. It is silent on the subject of values. All these realities are subjective, and hence Behaviourism eschews them as not data for science. Thus, in its zeal to render psychology scientific, it has withdrawn from the field of psychology altogether!

Nevertheless, against Behaviourism *as science* there is no serious criticism to be urged, except when its promoters mistake palpably bad logic for scientific procedure. It is only against Behaviour-

ism *as a cult* that there is ground for complaint. For as a cult Behaviourism unconsciously becomes a philosophy of life, and a very faulty one at that. For it is a philosophy with a blind spot, since it tends not only to ignore as data, but also to repudiate as reality, the whole category of conscious feeling. By so doing its logic manœuvres the thinker into a position where one experience has to be accepted as quite as *good* as another. Thus it leaves neither substance nor method out of which a philosophy of life can be organized. And this is serious; for in the present crash of ancient creeds and clash of novel circumstances there is scarcely anything the age more deeply needs than a new philosophy of human values. Our charge, therefore, against Behaviourism is that it is obstructing one of the most important intellectual tasks of the times. And this it is doing through a logical fallacy in the grammar of its own technique, and by virtue of a prestige inherited from its mother, the old psychology.

The charge against it of being a cult is one that Behaviourism is entitled to have either substantiated or else withdrawn. The following characteristics of the movement are therefore pointed out as cultish. First of all, it is based upon premises that are undemonstrable. In other words, at its foundations is an article of faith. There is a limited extent, to be sure, to which all science is alike in this respect, because of the epistemological postulates always involved in

its techniques. But, as pointed out above, the epistemological assumption is a very different matter in the mental-social fields than in the fields of the natural sciences. In the case of Behaviourism the epistemological assumption takes the following unwarranted form : that the techniques of science are applicable to *all* reality ; or, conversely, that no reality falls outside the applicability of the scientific technique ; or, in other words, that there is and can be no other technique of research than that of objective science. Not only is this assumption undemonstrable, but it is demonstrably untrue, as this paper has made it its central business to point out. To claim for the scientific technique a monopoly of all knowledge-getting processes is *a priori* as to logic, a blind spot of the intellect, and quite as productive of intellectual aberrations as any other cult. It can hardly be too often insisted that there is a radical epistemological fallacy in the primary assumptions of the behaviouristic grammar.

In the second place, Behaviourism is fractional and one-sided, and therefore cultish. It has a blind spot. It rides a hobby. In this respect it is like Freudianism, Christian Science, or Socialism. This fault is obvious in its consistent policy of having nothing to do with thought and feeling as data of investigation, a policy which becomes quasi-fanatical when Behaviourists go to the length of repudiating consciousness altogether. To deny that consciousness is datum for science

is one thing; to deny its reality is quite another, and palpably absurd. There is nothing more important for scientists in the mental-social field than always to distinguish between the two great kingdoms of reality: things and values. If they elect to limit their researches to the one, that is perhaps their privilege, though it is obviously abandoning their own field; but to repudiate the other as a field of reality for investigation is both absurd and pernicious. Consciousness, thought processes, and feeling constitute a realm of reality that must be, not repudiated and abandoned, but studied by some other technique than the strictly scientific. By its attitude and policy on the matter Behaviourism has withdrawn from the real field of psychology into the fields of physiology and neurology. While adding, therefore, to the sum total of our knowledge about muscles, glands, and nerves, it has been a veritable dog-in-the-manger to psychology proper. And by its disparagement it has actually obstructed such extra-scientific inquiries as might throw light upon the fundamentally desirable values of human experience and aspiration. Its sins, therefore, like those of some other cults, are largely those of omission and disparagement.

Behaviourism is cultish, in the third place, in its insistence upon cramming the facts of life into its preconceived categories. It is like Freudianism in this respect. There is perhaps no better illustration of this than Floyd Allport's elabora-

tion, in the *Social Psychology*, of his six prepotent reflexes. By what scientific induction does he know that there are six prepotent reflexes instead of sixty? And what is the reason that, in man, these six prepotent reflexes elaborate themselves into civilization, but into nothing of the sort in the case of the other mammals? For other mammals have the six! But having established his six prepotent reflexes *a priori*, his would-be exact science sometimes degenerates into the sheerest verbalism in its attempt to make the categories explain the facts of behaviour. For example, he explains concealment, modesty, and moral shame in terms of the withdrawal reflex (p. 54), cleanliness in terms of the rejection reflex (p. 57), social reform in terms of the struggle reflex (p. 61), sensitiveness to social approval or disapproval in terms of the tickling reflex (p. 69), and maternal affection in terms of the sex reflexes (p. 78). One is prepared to hear his account in all seriousness for the suckers and kickers in adult society in terms of the sucking and kicking reflexes of infants, for that would be not one whit more flagrant a piece of sheer verbal jugglery. The book abounds in just such fallacies. Even his basic distinction between instinct and habit (p. 43) is a mere definition of terms naïvely mistaken for a factual classification of phenomena. A science that mistakes lexicography for research is criticizable as a cult, especially when the enterprise is so obtrusively in evidence of making

a preconceived theory consistent with the facts. One is reminded of the old charge against theology, that you can prove anything by the Bible.

Behaviourism is suggestive of a religious cult, in the fourth place, because of its zeal, dogmatism, and intellectual self-righteousness. Of obscure origin, it would hardly have been able to carry off the part; but inheriting, as it was fortunate enough to do, the prestige of our best psychological traditions and academic connections, it has become the intellectual fashion of the day—or at least of yesterday. It seemed for a while almost as if, in psychology, one was in imminent danger of being nothing if not behaviouristic, so that the cult spread like any religious epidemic. Such fads, cults, and epidemics are hardly creditable to the fraternity of scientists. A most disconcerting eruption of such phenomena has, the last two or three decades, accompanied the aspiration to scientize the mental-social fields. The antidote may well turn out to be nothing else than our aforesaid distinction between objective and subjective cognition, together with the formulation of an adequate grammar for the treatment of subjective data.

If this sounds like a rather stern criticism of Behaviourism, let it be remembered that we are distinguishing sharply between Behaviourism as science and Behaviourism as cult. It is only as a cult that Behaviourism deserves criticism. As science it deserves the highest praise, not merely

for its specific contributions to knowledge, but especially for its insistence upon exact, objective methods wherever such are possible, and, perhaps above all, for the techniques that some of its brilliant promoters have devised. That, of course, will prove, in the sequel, to be its permanent contribution. A cult it will shortly cease to be, no doubt. And perhaps even its cultish aspect may have served to advertise its scientific contribution. And, incidentally, it may be confessed that in this criticism we are using Behaviourism as a sort of scapegoat for the sins and aberrations of the scientific movement in the entire mental-social field.

Returning now to the keynote of this paper—namely, the distinction between phenomena and values—let it be pointed out that values make up what is sometimes called the spiritual side of life. It must be understood, however, that the word "spiritual" is used in a much broader than the merely religious sense, to include all æsthetic, moral, and social values. It seems passing strange that there has always been more or less conflict between the materialistic and the spiritual concepts of human nature. The mechanistic versus the spiritual view of life is, nevertheless, an age-old antagonism; and the present protest of philosophy and religion against Behaviourism is but the current phase of that old issue. But the issue seems gratuitous and needless; one of those debates that is destined to be vacated but never

settled, because the very terms in which it is debated are found eventually to be misconceptions.

The conflict arises from the fact that causality and purpose are incommensurate categories, but are not clearly recognized as such. Each has to be thought of, and thought through, without reference to the other. To illustrate: we see the world, and we also hear the world. Each process is quite independent of the other, though we articulate the findings of both processes in our concept of the world. Similarly, we take account of causality, and we take account of purposes. They are independent thought processes, involving differing epistemological postulates. The confusion arises from trying to merge them into a thought system of a single category. The mechanistic activity of an automobile's going forward under its own power figures up to an equivalence of energy, no matter where the automobile goes. The steering gear is a separate system. So with causality and purpose: the mechanistic and the spiritual views of life. Why should the running gear say to the steering gear, What need have I of thee? Conflict arises when the student of causality goes out of his way to repudiate life's values, or when the student of values gets into the way by setting up the spiritual aspect of life as an ontological entity. Why should the nouns try to push the adjectives out of the sentence, or the adjectives try to set up in business as nouns? What we need is a division of labour:

one studies phenomena, another values; one is interested in the means of life, another in the ends; and each with his own technique and methods.

Perhaps this discussion is hardly complete without some intimation of the techniques that are available for knowledge-getting in the field of values. With this—and very briefly presented—the paper will conclude.

At the outset it must be understood that what we mean is knowledge of what other people like or dislike; what the species values. The aim is to rise from one's own solipsistic experience to a knowledge of what other persons, or people in general, are enjoying or suffering—the only sense in which such knowledge can be objective. It is an attempt, in other words, to discover the general run of human appreciations.

One way to do this is by taking votes. How generally do people like green olives, classical music, or permanent monogamy? Take a vote! One way of taking a vote is by asking them; whereupon you tabulate their "speech reactions" and treat them statistically. Another way is to observe their behaviour, noting whether they behave "as if" they did or "as if" they did not; whereupon you tabulate their "behaviour reactions" and treat them statistically. Westermarck's study of the human family is a sample of this technique; through it he establishes the presumption that permanent monogamy is relatively *good* for most normal persons.

But it must be carefully noted that in this technique there are two distinct steps. The first step is *the intuition* of " as-if-ness " ; the second step is the technical treatment of the " as-if " phenomena. Only the second is present in objective science. For example : some one is observed, while eating green olives, to make the kind of grimaces which the observer is aware of making himself when he tastes something unpleasant ; so the observer infers that the person observed dislikes olives. This is the intuition of " as-if-ness " indispensable to the study of values, but absent from the study of phenomena. The data treated statistically are not, therefore, the *values* under investigation at all, but behaviour phenomena that *have been inferred* to be concomitant to and representative of those values. It follows, then, that there is and can be nothing better than an " as-if " science of values. Nevertheless, neither Behaviourism nor any other brand of psychology needs disparage such a quasi-scientific science of values.

Be it carefully noted, then, that the intuition of concomitance is the essential step in any study of values, and that this is a mental process as different from the technique of science as swallowing is different from chewing. It follows that as much may sometimes be learned about values by elaborating the intuitions as by elaborating concomitant data scientifically. And the elaboration of intuitions often goes forward by processes that

elude formulation or even conscious detection. They are often stimulated, accordingly, by enriching one's acquaintance with life, literature, history, and art. Introspective studies like those of William James, G. Stanley Hall, or Prof. E. B. Titchener are likely to yield as fruitful knowledge in this field as the most elaborate "as-if" procedure. But perhaps most fruitful of all are the sheer insights of intuitive genius, like a Shakespeare or a Balzac. To learn which human beings generally have values there is nothing like summering and wintering with historic personages and their associates, or a generous and sympathetic contemplation of the representative art of great civilizations, or going out and coming in with all sorts and conditions of folks in one's own environment and century. From all such informal, extra-scientific study of human values there is no valid reason why Behaviourism, or any other branch of science, should withhold its approval. And certainly it is as important to be right about the *ends* of life as about the *means* thereof!

V

BEHAVIOURISM AND RELIGION

BY JULIUS MARK

THE issue between Behaviourism and Religion is clear-cut and definite. It resolves itself down to the question, "Does man live by bread alone?" The answer of the Behaviourist is a positive "yes," while the reply of the Religionist is an equally unequivocal "no." Behaviourism is a logical consequence of a materialistic philosophy of life, while Religion does not pretend to exist without an emphasis upon the spiritual.

Now it may be noted at the outset that Behaviourism does not in itself constitute a frontal attack upon Religion. Professor Watson does not take the time to refute its tenets. He merely ignores Religion, taking it for granted that for the intelligent it has ceased to exist. Thus he says that Religion is "being replaced among the educated by experimental ethics" and "the old psychology is dominated by a kind of subtle religious philosophy." No thinking man is afraid when his philosophy is attacked. If his search is for truth, he will gladly welcome the assaults of those who disagree with him. Then he will

either refute his opponents, or he will admit that he had been wrong and revise his original opinions. But we all dislike to be ignored, to be swept aside with a wave of the hand, to be considered even beneath contempt. Thus when I, a believer in the truth and efficacy of Religion, was requested to contribute to this volume, I was very happy to respond.

To me Behaviourism is the work of a "good man gone wrong," to put it rather bluntly. It has unquestionably made, and is continuing to make, a very valuable contribution to human knowledge. The study of animal and human behaviour is exceedingly important. Its enthusiasm for scientific exactness is decidedly laudable. The only trouble is that it has chosen to ignore a source of knowledge that is vital to a rational understanding of life, if not to truth in general. If Behaviourism were to limit its field to the mere study of behaviour, it would serve a vital purpose and become a very useful study. But when it seeks to become Psychology, Philosophy, Ethics, etc., all in one, then, to use Edward S. Robinson's expression, it resolves itself into "an interesting blend of solid contribution and adolescent exaggeration." It forswears its self-styled right to be called rigidly scientific when its outstanding proponent repudiates any source of knowledge whatsoever.

Take, for example, the perfectly simple way in which Professor Watson disposes of the origin

of the idea of the soul. He tells us that "no one knows just how the idea of a soul or the supernatural started. It probably had its origin in the general laziness of mankind." I agree that no one knows exactly how the idea of the supernatural arose. But to even hold to the *probability* that it arose from "a general laziness of mankind" is to manifest either inexcusable ignorance upon the subject of the history of religions or a desire to be cheaply cynical. I, too, say "probably." But to me it is far more reasonable to agree with those scholars in the field who have come to the conclusion that the idea of the supernatural arose with the urge in men's minds (if I may be permitted to use this term) for an explanation of the universe. In quest for an answer to the riddle of the world, they arrived at the idea of the existence of the spiritual They, too, were undoubtedly aware of "behaviour," of movements and reactions in men and animals, of the "squirmings" of infants. But all that did not serve to explain anything. They went further in their search; they probed deeper into reality.

The basic argument of Behaviourism centres upon its denial of the existence of "soul," "spirit," and "mind," the primary reason being that "the Behaviourist finds no mind in his laboratory, sees it nowhere in his subjects." To the unthinking and the unscientific such a statement sounds extremely logical. And for nearly twenty years the rallying cry of Professor Watson's followers has

been, "You can't put the soul in a test-tube; therefore it doesn't exist." I wonder how many of these supposedly rigorous "scientists" would deny the existence of electricity because it has never been confined in a test-tube? I wonder how many would hold that there is no such thing as energy because no physicist has ever seen, touched, smelled, tasted, or heard it? It is childish logic such as the above argument manifests that may cast into disrepute even that which is good and true in Behaviourism.

By this I do not mean to say that the study of the mind is at all easy. On the contrary, by the very reason of its elusiveness, it constitutes one of the most difficult of all problems. The Introspectionists have barely scratched the surface, and many of their conclusions may well bear revision. The point is that you can't solve a problem by merely denying its existence. The world would not get very far if the physicist, instead of assuming the existence of energy and making use of it in his experiments, would drop all his work because his five senses do not reveal it. True enough, no one knows just exactly what mind is. No one can put his finger on it or discover it after the most painstaking scrutiny of every portion of a dissected body. But we are using it all the time. The Behaviourist may not even like the very word "mind." That is his private opinion. Most people use the word and, I may say, have a pretty good idea of what it is, though they may agree

with those who claim that you cannot bottle it up in a test-tube.

Then take the question of consciousness. Professor Watson complains that he can discover no consciousness "in his laboratories" nor "in his subjects." Again we agree that there is no empirical proof for the existence of consciousness. But does that mean that it does not exist? Isn't that a mere begging of the question? We believe that consciousness exists. We go further and admit that our belief is based upon an assumption. To this the "scientific Behaviourist" may hold up his hands in holy horror, and dub us a hopeless medievalist. Well and good! But we have pretty good grounds for holding to such an assumption. *We assume that others possess consciousness because we ourselves are conscious.* It is the Behaviourist who is illogical when he claims that his subject does not have consciousness, unless the Behaviourist himself is void of consciousness. And if the Behaviourist makes such an admission, then any attempt at any reasoning whatsoever is absurd. Dr Wolfgang Köhler, in his scholarly book *Gestalt Psychology*, says: "One can never 'prove' conclusively the existence of an independent physical world." If that be true, then why deny the reality of the spiritual, which is far more elusive than the physical, when both ultimately must be assumed? Logic does not permit us to accept the one without the other.

Speaking of Gestalt Psychology recalls a very

interesting conflict of thought in the realm of psychology, particularly between German and American scientists in this field. Watson, the American, is in opposition to Wundt, the German, and his school of Introspectionists. To-day Köhler, Koffka, and the German school of Gestaltists are challenging the American Behaviourists, and are also criticizing many of the conclusions of the Introspectionists. But it is particularly against the mechanistic theories of Watson's school that they hurl their most deadly shafts. Their quarrel rests upon the principle that "to tear asunder stimuli and responses in an individual is to violate the subject." They hold that no organism behaves with a few dissociated parts, each of which can be studied as one examines the parts of a machine, but that it acts and reacts with its whole self. Therefore it is unfair to study an individual (and in all probability an animal) in a laboratory, since the chances are that it will not be at all natural under such circumstances. Religion agrees with the Gestaltists that life, to be appreciated and understood, must be viewed not from a small, circumspect angle, but must be regarded as a whole and from every possible viewpoint, *sub specie æternitatis*.

The challenge that Behaviourism offers Ethics is one that no Religionist can let pass by unanswered. "Men are built, not born," says Professor Watson. Give us your babies, he says, and we will place them in our laboratories, study

their " squirmings," and " condition " them into artists, bricklayers, physicians, teachers, street cleaners, university professors, and what not. But then he assures us that " psychology is not concerned with the goodness or badness of acts, or with their successfulness as judged by occupational or moral standards." The plea for " conditioning " (another word for education) sounds very fine, but what parent will place his child in the care of an instructor for whom moral values have no meaning ? I have noted in my own five-months'-old son many of the infant " squirmings " described by Professor Watson and have profited greatly from the studies he has made ; but he can teach me nothing when it comes to his training in the realm of ethics. Life is to a very large extent governed by the habits built up in childhood, habits that we learn from our environment, our companions, our instructors. What father or mother will regard training in the realm of morals as unimportant ? I should consider such a parent guilty of unfairness to his own child ; yes, as being directly responsible for its future unhappiness. There are enough unfortunate men and women incarcerated in our penal institutions, placed there because of criminal neglect on the part of parents or society, or both.

" Men are built, not born." This statement, like most catch phrases, is but a half-truth, and, as such, is even more dangerous than a total misstatement. Of course men are " built." No one

is born with an education or with a philosophy of life. These must be learned; they must be acquired often by patient and painstaking application. But men are also "born." Heredity unquestionably plays an important rôle in our physical and mental make-up. If it did not, how will you explain what is commonly known as "genius"? Who can explain a Lincoln, an Edison, an Einstein? If the average individual, or even the exceptionally gifted person, were to study and be taught, say, electrical engineering for a hundred years, would that mean that he would develop into an Edison? If I were to devote myself from now till doomsday to the study of physics, could I possibly develop into an Einstein who revolutionized that field before he had attained his fiftieth year? Can a Beethoven or a Bach be produced at will? How geniuses appear in the midst of humanity remains one of the darkest of all mysteries. Training and education and "conditioning" do not explain them. Immediate heredity can offer no solution. Caruso was one of seventeen children in a family which exhibited no superior ability in music. The only possible answer to these mysterious aptitudes, the existence of which Professor Watson denies, may perhaps be found through a thorough study of the remotest ancestry of an individual. And that is manifestly impossible.

Another principle of the behaviouristic school is that man is a "machine." In his concluding

chapter on "Behaviourism" Professor Watson asks us to "try to think of man as an assembled organic machine ready to run." He then describes the various parts of an automobile, such as tires, wheels, axle, differential, engine, body. Once again Behaviourism is guilty of stating a half-truth. Of course man is like a machine—to an important extent. The various parts of his body function similarly to the parts of an automobile. His fuel is the food which he consumes. His parts are the organs of his body. Like the parts of an automobile, his organs occasionally fail to function properly and must be repaired, sometimes even replaced. In time he will wear out and die, if in the meantime he is not violently destroyed. But there is one important difference, certainly an obvious difference, between man and machine. *A machine requires a driver.* No machine is self-winding. Some intelligent force must put it together, get it started, and keep it going. Religionists believe that such an intelligent force exists. It put the world together and keeps it going. It has also endowed man with part of that force, so that, within limits, he can keep himself going. He can protect himself from the cold of winter and the heat of summer. He can devise means, through a science called medicine, to ward off disease and remain healthy and alive longer. He can provide himself with comforts. Yes, he can *build the very machines* to which the Behaviourist compares him.

This brings us to another question upon which Behaviourism and Religion are in radical disagreement—namely, the question of free will. Behaviourism categorically denies the existence of any such force as free will. Man is merely a bundle of "squirmings." He is a slave to his environment, a victim of circumstance, a pawn in the relentless grip of a ruthless and meaningless destiny, without dignity, freedom, or will. He comes into the world with "reflexes" that respond automatically now to one and now to another situation that happens to arise. As a logical outcome of such reasoning man cannot be held responsible for his actions.

True enough no one has seen, tasted, felt, smelled, or heard anything that may approximate what we might call the "will." Behaviourism at least is consistent in its contentions. But is it practical? Is life possible, or, at least, can life be endurable in any society where the individual is not held responsible for anything he does? Logic is a two-edged sword. It leads to truth, but it may also result in the most naïve absurdities. After all, we must live in this world and, unless we want to spend that life upon some desert island, we must live side by side with our fellow-men. And that is possible only in a society wherein men *are* responsible. I am reminded very much of the pessimist who argued for an hour upon the proposition that life is not worth while living. Why argue about it? If life isn't worth while

living, there is a very simple way of bringing it to an end. Similar-wise, why deny free will when your very safety depends upon the acknowledgment, whether actually or by implication, that it is a fact.

To be sure, I am not seeking to establish the proposition, manifestly absurd, that man is totally free. No man can live forever. No man can jump off the earth, unless he can be shot through space far enough to be out of the range of our planet's gravity. But we *can* take our lives or continue to live. We can earn an honest living or prey upon our neighbour. We can be honest, kindly, loyal, generous, or we can be dishonest, unkind, disloyal, miserly. Every law that is established by the State is based upon the principle that we are responsible human beings. And that is about as far as an intelligent conception of freedom of the will goes. The only trouble is that the Behaviourist denies the "ego." He does not admit that there can be any such thing as an "I" or a "we."

I shudder to imagine what life would be like were it governed by the deterministic, mechanistic theories such as Behaviourism advances. Life without will, without meaning, without purpose, without fascination! Life conceived of merely as an endless, monotonous repetition of stimulus and response, stimulus and response, push and pull, push and pull, to all eternity! What a cruel, cynical, inhuman conception of life

this is ! If I were forced to endure a drab, colourless, futile existence such as this, I should either make short shrift of it or turn to the childish illusions of the primitive ancestors of our race. The beautiful words of Wordsworth come to me :

> "Great God," he cries, "I'd rather be
> A pagan suckled in a creed outworn,
> So might I, standing on this pleasant lea,
> Have glimpses that would make me less forlorn ;
> Have sight of Proteus rising from the sea,
> Or hear old Triton blow his wreathèd horn."

Yes, even obeisance to idols, works of mortal hands, would be preferable to losing the grandeur and the magnificence which the contemplation of the spiritual affords.

If man does not possess will, what becomes of progress ? If he is merely a victim of his surroundings and nothing more, why have education, which is a conscious attempt to lift man above his environment so that he might become its master instead of being its slave ? What possible need can there be for initiative, a quality which we are seeking to implant into our young ? Certainly this is an argument which no intelligent individual who is devoted to education can circumvent. Professor Watson contradicts himself every time he speaks of the Behaviourist " controlling " or " conditioning " other people's conduct. Who is to do the " controlling " ? A machine " conditioning " another machine ? How absurd !

Professor M'Dougall in his admirable essay, "Behaviourism Examined," illustrates the viciousness of a mechanistic philosophy by referring to the efforts that are to-day being made for abolishing war. "If mechanistic psychology is true," he says, "if all human action as well as all other events are strictly predetermined, it is perfectly futile for us to think, to plan, and to strive to prevent war; for war is either coming or not coming, regardless of what men may strive to do to prevent it or incite it. All of us may just as well relax our efforts; eat, drink, and be merry; for our thinking out plans, our Leagues of Nations, our World Courts, our Disarmament Treaties, our most strenuous efforts to realize the ideal of peace by aid of such plans—all alike are perfectly futile."

There is much food for sober thought in this statement of the noted psychologist, not only because it reveals the utter bankruptcy of the mechanistic dogma, but also by reason of its bringing to the forefront of our thinking a highly important problem. The most eminent thinkers of our day have warned us that the world cannot endure another war. The white race will not in all probability survive another orgy of fratricidal combat. And the outcome of the struggle between war and peace will not be determined by the victory or defeat of the so-called militarists or pacifists. The problem goes deeper, in a realm the existence of which the Behaviourists deny—

namely, *men's minds*. The issue is between those who believe that human nature does not and cannot change and those who maintain that it *can* and *does* change. On the one hand you have fatalism, determinism, and cynicism; on the other, faith, freedom of the will, and hope. The former are influenced by a psychology such as Behaviourism; the latter are guided by a system of thought such as Religion advances. For the sake of argument, let us admit that you cannot prove the validity of either. But realizing that you live in a practical, workaday world, *which will you choose*?

As I suggested at the beginning of this essay, I do not regard Behaviourism as a direct attack upon Religion *per se*. But it most assuredly advances a system of thought to which Religion by its very nature is essentially in opposition. Behaviourism is seized by those forces in present-day life which, while not directly challenging Religion and the Church, are nevertheless undermining their influence by spreading a form of thought which is subversive of a hopeful, vigorous, and optimistic philosophy of life. Its very subtleness makes propaganda of this kind sinister and dangerous. Perhaps the most serious consequence of the World War has been the fact that it has made men more pessimistic and more cynical. Behaviouristic psychology, with its emphasis upon mechanism and materialism and its denial not only of the existence of the spiritual

but of the capacity of man to progress, has contributed very largely to this spirit of futile fatalism. It has been welcomed particularly by those of little scholarly insight, whose ideals have been shattered by the unfortunate experience through which the world has recently gone.

Religion by its very nature cannot condone any such philosophy of life. Behaviourism is materialistic, denying not merely validity but the very existence of anything spiritual; Religion recognizes the physical world of matter, but is also conscious of the being and the truth of the spiritual. Behaviourism regards man as a machine, pure and simple; Religion is cognizant of the similarities between the physical make-up of man and a machine, but in addition endows him with a dignity which only the existence of a conscious ego can bestow. Behaviourism denies freedom of the will to the individual; Religion admits that man is governed by a will greater than his own, but that man possesses volition to a very large degree. Behaviourism is interested in "muscle twitching," nothing more; Religion, too, is concerned with observable physical reactions, but also recognizes the existence of a mental world within the individual. Behaviourism denies the existence of an Intelligent Supreme Being, since It cannot be confined within the limits of a test-tube; Religion posits the existence of such a Being as the explanation for the existence of the universe. Behaviourism asks, "What does

a man do ? " nothing more. Religion, too, asks this question, but is also concerned with what he *means* by his act. Behaviourism " asks for nothing to start with in building a human being but the squirmings every one can see in the newborn babe " ; Religion asks for this, but also requires a mind which it may fashion into intelligence and a soul which it may mould into character. Behaviourism " is not concerned in the goodness or badness of acts " ; Religion is most decidedly interested in this. Like Behaviourism, Religion is concerned with " controlling," but it seeks to control not only the body but also the spirit of man.

Thus, it can be readily seen that there can be no peace between Religion and out-and-out Behaviourism. They are on " opposite sides of the fence." They begin with opposing premises, have contradictory conceptions of life and the world, view mankind from diverse angles, and seek the attainment of different ends. To the one, man is as meaningless as a worm or a stick of wood ; the other, while recognizing man's weakness and mortality, yet endows him with the courage to " make himself at home in the world," with the faith to overcome defeat and disappointment, with the hope that progress is not only a possibility but a fact, with an unfailing confidence in the fundamental goodness of man and his capacity to grow better as his intellectual insight is deepened and his spiritual propensities are clarified.

VI

HAVE SOULS GONE OUT OF FASHION?

BY RUFUS M. JONES

ABRAHAM LINCOLN said in his famous Peoria speech: "You may repeal the Missouri Compromise; you may repeal all compromises; you may repeal the Declaration of Independence and the events of history, but you cannot repeal human nature."

So, too, the philosopher, or the psychologist, may very well from time to time change his phraseology and his formulation for the central realities of life; but whatever may be the passing language fashion of the time by which the inmost core of personality in man is described, the thing itself abides and resists all attempts to "repeal" it, or to obliterate it, or to ignore it. The fashion of describing "souls" will alter many times in the future, as it has altered many times in the past history of the race, but that ground-swell surge in us that voices itself with the words "I" and "me" will break through and assert its reality and its claim however the terminology shifts and changes.

We have recently been reminded that the soul is a "myth," but a "myth" that carries along such a magnificent trail of light and splendour as the "soul" of man does may well prove to be an extremely *live* myth. There would be as much justification certainly for the phase, "the myth of the atom," or "the myth of the germ-cell," or "the myth of gravitation," as there is for "the myth of the soul." At the same time there has been so much of myth, legend, muddle, and rubbish written and spoken about the soul that one cannot wonder that the long-suffering reader and listener revolts, cries, "Hold, enough," and in his wrath charges the whole account up to mythology. Mythology there certainly is in the long story, but that answer is a too easy one for the profound and stubborn problem before us.

"Animism" is one of primitive man's earliest theories to account for motion and activity. It means that all beings and even things that move and act have "souls" or "spirits" within that "animate" and direct them. By a natural generalization this inside "animus," or "soul," is extended to all striking phenomena in the universe. The "angry" river that rushes on with destructive power has an "animus." The volcanic mountain with its explosions of destructive force has its mighty "spirit" heaving within. The electric storm-cloud is the seat and habitation of a wrathful "animus." Mythology has poetized this child-minded explanation and it has held its

place through the ages, and has again and again defied the onward march of scientific thought. There is a larger stock of "animism" in the minds of the peoples of the earth to-day—even the civilized ones—than we who believe in the nobility and dignity of man like to admit. For centuries in the thin light of this animistic theory man's "soul" was thought of as "an inside self" that used the body as its dwelling-place, could on occasion, especially in sleep or trance, slip out of the body and do business on its own hook, and could probably "survive" after the death of the body and have a ghostlike existence in the dim habitat of disembodied souls. The mystery religions gave a fresh impulse to this theory, traced the origin of the "animus" to a divine realm, and gave vogue and fascination to methods of purification, liberation, release, and salvation of the soul with promise of its final "return" to its lost divine estate.

Plato raised the doctrine of the soul to a very much higher intellectual level than that attained by popular animism, or by the teachings of the mystery religions. Plato described three types of soul-functions, and he sometimes even seems to imply the existence in man of a "trinitarian soul"—*i.e.*, a triply divided soul. The lowest functions are the appetites and passions, whose seat is in the region below the diaphragm. On the second level are the courageous attitudes which are located in the heart, and on the third

and highest level is the intellect, which has its seat in the brain. The intellect, or mind, is thought of by Plato as an offspring of the Eternal World-Mind. It is possessed of an innate capacity to produce out of itself universal Ideas. The universal Ideas organize all experience into permanent unities of thought, and these unities of thought in man's mind correspond to the mind-patterns according to which the world was made, so that the mind in us is forever related or kin to the Mind that is the source of all reality, all beauty, truth, and goodness in the universe. The essential " soul " for Plato is this *mind reality* in man, without which there could be no truth, or beauty, or love, or goodness for him.

Aristotle gave the soul a new formulation and inaugurated a new stage in the history of psychology. For him the soul is the *vital principle*, the moving force of the body. But it is not a cheap, crude " mover." It does not operate as an outside pushing force. It is " an unmoved mover " acting within man. It moves the body by producing from within attractive aims and goals and purposes to be accomplished. It thinks thoughts and ideals, and the body moves to realize them. I think of myself, for example, as seated in the train and then run to catch it. The soul is thus the essential form or potentiality of the body. But Aristotle assumes that there is at the apex of the soul what he calls an " active reason," which could have had no earthly origin.

It is not receptive like the senses; it is originative and creative. It thinks its own thoughts as God does. It is a divine and Godlike capacity. This active reason in man, which Aristotle introduced but did not explain, came to have an immense influence on medieval Christian thought and on scholastic philosophy. It was a short and easy step to conclude, as most Christian thinkers of those earlier times did, that this active or creative reason, the highest capacity in man, is not only like God, but actually is derived from God—is in fact something of God in man. Some thinkers called this highest creative capacity "the divine Spark" in man's soul, some called it "the Apex of the soul," or "the Ground of the soul," or "the soul-Centre," or "the inner Light," or "the Shekinah" in man. Aristotle was the most unmystical philosopher that ever lived, and yet his doctrine of "active reason" furnished to the great mystics of the Church the intellectual basis for their mystical approach. There is, these followers of Aristotle believed, something of God in the very nature of the soul, an unlost and inalienable spiritual capacity.

René Descartes, the great French genius of the early seventeenth century and the founder of modern philosophy, set forth the classic formulation of the soul as "a *thinking substance*." It was not a new doctrine with him, but it was freshly and vividly interpreted and defended by the famous Frenchman. When Descartes called the

soul "substance," he did not mean by the word what we mean when we speak of "worldly goods" as substance. The poor prodigal in the parable "wasted his substance in riotous living," but a little later "he came to himself," and therefore the other kind of *substance* was still in working evidence. Few words have ever played a greater or a more mysterious rôle than this word "substance." It is a fine illustration of what Francis Bacon called "an idol of the forum," which is a tendency to have words govern thoughts rather than thoughts words. Nobody ever quite knew what he meant when he conjured with this lordly word "substance," and John Locke admitted as much when he said that substance is "a hidden something, I know not what, in behind."

The soul as *substance* is absolutely unlike matter, which is the other kind of *substance*, and which is extended in space. The soul for Descartes is not extended, it does not occupy space. It is, like a mathematical point, without dimension. Its one attribute is thought. It is not dependent on the body. It remains identically the same through all the experiences of life. It neither influences the body nor is influenced by it. It is an immaterial and indestructible substance which God has created and endowed to be a finite thinker of thoughts. Descartes' soul conceived as unchanging substance, as a mysterious entity without any size and entirely sundered from

matter, solves none of our real problems, but introduces more mysteries and more puzzles than any other conception man has yet proposed. This "soul" of Descartes *has* fortunately "gone out of fashion."

Having "lost" this old-fashioned kind of soul, which would not be of any use to us if we had kept it, it is important, as the next step, to see if there is any new "fashion" in souls which seems likely to offer us any promise of help and relief. A "soul" that is only "a hidden I know not what," that is essentially *identical* from birth to death, and that is an undimensional entity on which to hang ideas, may as well "go" with good riddance. What we want in the place of this "idol-of-the-forum" type of "soul" is a genuine *self* that can become what it actually does become and can do what it actually does do in the process of our lives as persons. We are too practical to be satisfied with mathematical-point souls, which seem as unreal as "a grin without any face," as impossible to discover as a stick that has only *one end*!

One of the most striking facts of our human experience is *knowing that we know*. We link up every fact that we know with the further consciousness that *we* know it. There is a well-known story of a man who went to market with his cart and oxen to sell a load of potatoes. Having sold his potatoes for good money, the farmer (it happened in ante-prohibition days) indulged too

freely in the tavern liquor of the period. The oxen wandered about unguided with the owner lying in a drunken stupor on the bottom of the empty cart. Meantime a passer-by, seeing a good team of oxen going about with no driver, detached them from the cart and drove them off. When the farmer began to " come to " and in his half-awakened consciousness observed the fact that there were no oxen yoked to the cart, he drawled out the following confused reflection: " I don't know exactly whom I am. If I am Bill Simkins, as I thought I was, I've lost a yoke of oxen; but if I ain't Bill, I have found a good cart." The trouble with the perplexed farmer was that he did not quite succeed in coming sufficiently to himself so that he could link up the scattered facts of observation with a self that could weave them into a single web of integrated experience with the added characteristic trait of personally knowing that he knew them.

We do not need to insist on an absolutely *identical* self that never alters from the cradle to the grave, for that comes to be an absurd identity, like the old substance theory. What we want, and what we must have if we are to have *knowledge* at all, is a more or less permanent nucleus of a self that genuinely accumulates and saves up the past, binds it with the living present, and at the same time anticipates a coherent future, all of which are felt to belong to *the same self*, or at least to a self that is near enough " same " to preserve its

feeling of identity—like Jericho Billing's boots, which, during the twenty years that Jericho wore them, had new tops five times and were resoled fifteen times, but remained through all the flow and welter of time the *same* pair of good, old, comfortable boots.

Nobody wants the absolutely unalterable, static self of the old dead theories. What we want is the kind of a self that will really account for *us* and will explain the incontrovertible fact of *knowledge*. Each one of us looks out on his world from his own particular point of view, with peculiar interests and with a novel shade of meaning that remains forever *ours*. Each one of us, furthermore, has his own unique inner life. We feel the inner flow of it in our ineffable way. We should be "lost" if we had anybody else's inside processes in place of our own. We have our very own aspiration and ideals, and we feel the ground-swell surge of our own will sorting, selecting, and deciding what act among all possible ones is to be *our* act. More central still, perhaps, is that august interior sense of obligation which cannot be obliterated without disrupting personality itself, that *sui generis* command of duty, which we lay upon ourselves, and the "fumbling" of which produces a feeling of remorse that, when it rises into its full power, sweeps aside all question and debate about the reality of a responsible self. This self belongs exclusively to *one* person. It is not shared by many as we share our "things."

It is private, in a way in which our house is not. It is insulated, until it chooses to communicate or transmit what it sees or thinks or feels or believes. It is more than something owned; it is the *owner* of what is owned.

The demands of *knowledge* are no less insistent than are the demands of the inner core of our being that makes us forever *us*. The primary condition of any knowledge whatsoever is the first-hand conscious certainty that we know what we know. Facts of knowledge do not float about in the air on their own hook as clouds do. We cannot call anything *knowledge* until somebody knows it and knows that he knows it. The three weird sisters in Greek mythology had one eye among them which they passed about in turn for each one to use when an object of special interest came in view. The one that for the moment had the eye was the one that recognized objects. But, weird as they were, we cannot imagine one of the three sisters saying that she recognized the approaching figure to be Hercules, because she had the testimony of the other two sisters that she, the first sister, knew it to be Hercules, though she herself did not know that she knew it!

One of the most striking features of *knowing* is the process of bringing many items from different sources together into a single unity. There is nowhere else a unity like this unity revealed by the knowing mind. All other unities are unities made up of parts that lie outside each other and

conjoin side by side. The unity of the knowing mind is an indivisible and integral whole in which everything that is known is known together in a single pulse of thought. To divide is to annihilate and destroy. The knowing mind is at every moment a psychic integer, never a shower of shot or a puff of mind dust. A subject that knows an object that is known can be discriminated in later reflection, but when we *experience* the knowledge as a living fact there is a unifying, foundational self that underlies the artificial division of seeming parts—a subject and an object in indivisible unity. Knowledge is not born until the consciousness of a self knowing an object is born, with the added condition that it knows that it knows!

But the unique type of mind that can know in this fashion—whether we call it "soul," or "spirit," or "self"—is not a mysterious entity, or substance, in lonely isolation in behind or up above our thoughts and feelings and decisions. It is not a thin abstraction. It is the concrete, living, active, dynamic mind which knows itself in and through all that it knows. Outer and inner aspect, the knower and the known, are not two different parts, but forever one living unity, no more to be taken apart and exhibited in separation than the convex side can be taken away from the curve.

This concrete, continuous, cumulative self, forever inheriting the past and always big with

the future, is an essential reality for any explanation of knowledge, but it is no less essential in any adequate account of the consciousness of *time*. We cannot locate an absolute, mathematical present. Whenever we try to seize or to hold a *now* with no width to it, it is gone while we try to locate it. It no longer *is*; it just now *was*. Any present that we can experience includes an immediate past, a passing present, and an anticipated immediate future. We hold these three tenses together in a pulse of consciousness and span the "was," "is," and "will be" in a living, palpitating moment that has considerable width to it. We see this process best in music. Here we rise above the single notes and hold them together in a time-transcending unity in which we also feel the harmony and significance of the music. Here again is a kind of unity possible only to mind.

It is no less striking in the case of memory. We not only recover an event which occurred in the past, but we think of it as in the past and in *our* past and yet as being relived again now in the present, while we ourselves, living through the original experiences *and* its revival, span and unite the old past and the new present in a time-defying achievement. The past, once it has passed, is dead and gone for everything but a mind like ours. It and it alone can *save* the past and resurrect it to a new life.

That curious experience which we call "mean-

ing" something is, again, another instance of an essential trait that only mind can account for. Whenever we perceive, imagine, remember, or think an object or event, it comes to us with a peculiar "meaning." We know it, recognize it, twig it, because we know what it "means." It "means" *this*; it does not "mean" that. That curious consciousness of "meaning" is another case of mind-spanning. We could never have it if we caught the object all alone in isolation. What we do is to put it in a setting, or a context. We interpret it in the light of the class to which it belongs, or by the way we intend to act toward it, or because we feel its halo of relations. In any case, some one mental reality holds many aspects together in a single pulse of living experience and knows what it *means*, by embedding its object in a wider fringe or context such as is possible only for a mind.

I am quite willing to let "the animistic soul" of primitive man, with its dim cast of mythology, go out of fashion. I can, too, calmly say "good-bye" to the abstract soul-substance, for, like the old man who had a stroke of apoplexy and lost his mind, but "didn't miss it very much," we should hardly know that we had lost anything, if this poor, thin, mathematical-point soul dropped out. But this concrete, dynamic, unifying self which inherits the past and anticipates the future —and at the same time spans them both—that knows and knows that it knows, that is the central

core of our identity and the august arbiter of what for us is true and beautiful and good—that type of a soul-self will never go out of fashion, for if it did, it and it alone would be there to *know* that the fashion had changed and to be the *judge* of the new fashion that was being inaugurated.

VII

BEHAVIOURISM AND FREEDOM

FRANCES J. McCONNELL

IN the study of any system which proclaims itself as virtually final truth, or as any degree of philosophic truth, for that matter, we do well to ask as to the fundamental assumptions of the system. Especially when a thinker is declaring himself an innovator or a discoverer must we be careful to look at his assumptions. It is a tactic peculiar to such discoverers to point with scorn to the assumptions under the conceptions which he is professing to displace, while ignoring the fact that the innovators themselves are making precisely the same or similar assumptions.

The Behaviourist makes the same assumptions as do those of us who are not Behaviourists. He makes at least three which he must have if he is to think at all. He takes for granted himself in a measurably like-minded community of persons; secondly, a common-to-all, a plane on which he meets others; and, thirdly, the trustworthiness of human reason. The Behaviourist never seems to ask himself if his utterances square themselves with these fundamental postulates. At the instant when he is ruling out the self he is taking

himself as a self, and gives himself earnestly to proving to other selves that no selves exist. Indeed, the Behaviourist has a veritable nest of assumptions to which he holds fast with unshakable grip.

My theme has to do with freedom. The Behaviourists assume freedom as a power of the self to choose between different causes. To be sure, the Behaviourist protests that this is not so—that there are no selves as such, but only responses to environment by a physical organism. Nevertheless the Behaviourist is seeking to make that idea itself clear to selves by proof or argument which assumes freedom. The only consistent course for the Behaviourist is to proceed with men as if they were nothing but material things, and then utilize the physical forces which will produce desired changes in those things. On his own basis the only effect a thought can have is to set up a series of physical changes which will involve the result aimed at. The difficulty here is that such changes give thought a power to which it can lay no claim on the Behaviourist basis. For the Behaviourist the significant fact is that a word, for example, is accompanied by laryngeal changes, which spread themselves through the organisn as ripples widen in a pool. We pass by words as embodying content, while we remark that all this complex process implies for him who seeks to change a man's mind (whatever man and mind are) a picking and choosing among various physical stimuli—and

such picking and choosing involves the assumption of freedom. If a Behaviourist wishes to convert non-Behaviourists, he must select and utilize the physical stimuli which produce Behaviourism in place of those which produce non-Behaviourism. On the theory before us, Mr. John B. Watson is a Behaviourist because he is the seat of physical impulses which produce Behaviourism, and the writer of this article is a non-Behaviourist because he is the seat of physical forces which produce non-Behaviourism. Beliefs, in this theory, are products of the working of physical powers. Only that, and nothing more. Of course all this is infested by swarms of inconsistencies of the sort which Hume worked through in his scepticism, and which have met logical disaster in every generation since. They have the persistency which becomes possible when readers too generously allow thinkers to make what assumptions they will, and then to use these very assumptions to deny the existence of assumptions. I pass all this by, however, and remark that along with the other assumptions of Behaviourism freedom is assumed—at least enough freedom to select the impulses which make toward Behaviourism.

By this time the Behaviourist is out of all patience. He tells us that, to recognize the truth of his teaching, we have only to "look and see." Psychology has suffered too long from the introspective method and has found release by looking away from the inside to the outside. Behaviourist

psychology takes persons as things and studies their reaction to stimuli.

There can be no doubt that it is well to look away somewhat from the inside to the outside; but why limit such looking to merely physical changes in a physical organism? The institutions of mankind—literature, art, the state, all the voluntary associations of society—are outward expressions of what is on the inside of man's mind, created by the conviction that the race can select from its environment and organize into institutions what expresses and satisfies its own needs. All this, however, the Behaviourist brushes to one side. This is not what we are to look at and see. We are to look at and see physical changes between men and environment taking place according to the demands of physical laws. The aim of Behaviourism is in part to make psychology more scientific. The difficulty is that the Behaviourist drags in so much metaphysics. We are told to limit ourselves to what we actually see. Now all that we see are changes taking place with more or less regularity. We never see a cause, or a law. The Behaviourist seems to think he has put all believers in freedom to flight when he tells us that we never see freedom. Who ever says we do? We see changes taking place. We behold a man—or what we thought to be a man until we learned that a man is a sort of integrated centre of responses to outside physical stimuli—come up to a fork in the roads. Of course we

used to say that what the man will do depends on the place which he aims to reach. All we see is that the man goes in one direction rather than another. We do not actually see any freedom—but neither do we see the actual working of any law of physical necessity. The pedestrian might have taken the other road and kept entirely within the scope of physical law. He uses all the laws that are involved in walking, after he has made either choice.

By the way, let us not forget that the sway of law in the physical realm is just about as hard to fit in with what we actually see as is the sway of freedom. The matter-of-fact world in which we live has rather an awkward way of getting along. The strictest scientist has, in the building of a suspension bridge, let us say, to make allowances for all manner of incalculable factors, so that the equation of the curve of the suspension cables is not the theoretically perfect curve for the demands of the bridge. When we look at human beings we are amazed at the amount of conduct which does not seem to fit into any law at all.

Look and see, says the Behaviourist. Well, see what? Can we see the physical changes which take place in a larynx which would give us any hint as to the content of the different words used? The seeing is not what the ordinary eye could see, but what the theorist is sure that our seeing would be if we could see what the theory calls for. The Behaviourist, and all the others of us,

would better keep in mind that seeing physical processes begets what Tom Paine called in another connection "the calamitous necessity of going on." In seeing physical processes we have to push back of the apparent to get at the real, we are told. To tell why a man takes one highway rather than another we have to get back of muscles and bones to nerves, and then back of nerves to cells, and then to molecules, and finally to atoms. What are atoms? Just now they seem to be organizations of electric energy, with the centres of energy related to one another like suns and planets in miniature solar systems. The proton is the sun. Around the proton revolve, or move in ellipses, electrons in various numbers. One number of electrons gives rise to what appears to us as gold, and another as lead. The organic elements, like those of the human body, are composed of these little solar systems in unimaginable complexity. Now in the Behaviourist's dictum that there is nothing in the universe except the play of physical forces, everything comes at last to atomic combinations. Down there in the atoms one combination of movements produces, in a large aggregation of atoms which we call a man, a belief which is Behaviourism. Then in another aggregation, which to all appearances seems like the first, the atoms produce another belief which is non-Behaviourism. The ironic aspect of all this appears when we reflect that the atoms are supposed to be centres of

forces which whirl with mathematical exactness. We are told that Einstein's formula for the special statement of relativity obtains in the atom systems. In any case, some mathematical formulas hold. Now mathematics is supposed to be the most exact of all phases of human thinking. The irony is that these exactest of all movements are the physical supports of both Behaviourism and non-Behaviourism. According to the Behaviourist the universe gives an account of itself in these stimuli which are made upon human organisms. There are, however, all sorts and conditions of stimuli. The only way a Behaviourist can reach a behaviouristic theory is to select and concentrate on behaviouristic stimuli. Of course selection by free choice is out of the question. So that the only recourse left to us is to recognize that the stimuli at one instant give forth behaviouristic notions, and at another non-behaviouristic. So there we are! The only way we can judge between forces of the physical kind is to estimate them by scales. There are differences in man and velocity. On that basis the Behaviourist who has the more violent stimuli, which report themselves in the more extravagant claims for Behaviourism and the more energetic scorn for non-Behaviourists, has the better of it. There is no end of the nonsense we get into when we try thus to estimate ideas on the basis of weight and force. On this basis, moreover, Behaviourism is not proved, except by majority vote.

It is open to the Behaviourist to reply that every stimulus has its own quality. Many persons of this type of thinking insist that the qualities of our impressions are not affected by the manner of their production. The Behaviourist does not leave much place for ends-in-themselves, but he would be willing to admit that an impression of the beautiful is what it is on its own account. If something in the environment makes in the human organism a response which reports itself as a beautiful picture, the beauty of the picture stands in its own right. What difference does it make, we are asked, whether the picture is produced by the environment or is the creation of the self's free activity?

Without laying stress on free activity as creating the picture outright, we do insist that if impressions of fine quality are produced in us by the environment we can do nothing about them if we do not have at least enough freedom to make choice from among them. We cannot say that we will look a little longer at the beautiful and push the ugly to one side. For each picture carries with it, or is carried along by, its own degree of force. It not only has an inherent quality, but an inherent quantity. There is nothing we can do about it at all. Now force of beauty is not physically construable. The picture with the highest conceivable power of inherent beauty may have back of it the weakest stimulus. It gleams before us for an instant,

and then is gone beyond recall—or at least beyond our recall. If some shift of energies in the environment reinforces the beautiful impression, it may return. In which case the problem of teaching art, or developing the appreciation of the beautiful, is that of developing the physical forces behind the feeling for the beautiful. Here again, however, we are helpless. Beyond a limited degree of training in general health and in development of the finer senses of sight and hearing and touch, who can tell what physical stimuli are accompanied by high artistic insight?

To return for a moment to the question of mass and force, we may even say that we cannot measure power without a standard which is the creation of the free spirit, and which demands freedom for its use. The entire problem of freedom is usually handled from the point of view of its moral significance, but the speculative significance is even more important. The ethical consequences of the denial of freedom are obvious and dramatic, of course. Yet here we might console ourselves with a feeling of vast tragedy. A distinguished philosopher has written finely of the *Free Man's Worship*, which, it appears, is to erect itself on a firm base of unyielding despair, with freedom counting for nothing. All of which makes a measure of appeal especially in comfortable arm-chair moods. We can easily grow poetic over the notion that we are all "poor puppets jerked by unseen wires," and as long as we do not become

so poor as to be too hungry, we can look at ourselves with melancholy delight. Suppose, however, we are all fools—that life is indeed "a tale told by an idiot, full of sound and fury, signifying nothing." If beliefs are only effects produced by causes, and not the results of free thinking, we are all alike dunces. Or the wisdom of the wisest man is no better than the dullness of the veriest dunce. There might conceivably be something noble in the tragedy of utter absence of moral freedom, but what is noble about a universe in which there is no difference between sense and nonsense? Behaviourism may be the last word of wisdom, but on its own theory it is no better than the first word of nonsense.

To get back to the measurement of quantities. How has the mind of man attained to the power to measure? By the free use of intellectually-conceived scales. The achievements of mathematics are the lordliest of the human mind. Who can think of a table of logarithms, or the binomial theorem, or the calculus as the outworking of physical stimuli? On the behaviouristic theory we should have to think that the balance in a mathematical equation is only an equilibrium between stimuli. There is no way of stating mathematical truth to fit it into the requirements of behaviouristic theory. There are some improvements in mathematical formulas that required decades to bring about. The thinkers who wrought the required improvements

may have thought that they were thinking, that they were freely holding the processes up to the standards of reason, that they were freely choosing among intellectual tools to find a true result, that they were suspending judgment when they could not find a satisfactory outcome. The Behaviourist would have us know that the mathematicians have been merely the recipients of physical stimuli. Now the gap between physical stimuli and mathematical concepts is so deep and vast as to suggest no necessary connection between them whatever. All we can get on the side of stimulus is particles of substance in motion—in motion, too, below the range of the power of the microscope to give us a glimpse of them. Then these motions, which are of such fineness that the microscope cannot seize them, give us, let us say, the idea of astronomical distances so vast that no telescope can grasp them. The infinitely little seizes the infinitely big, while the thought of the " big " is qualitatively unlike anything that physical movement of non-substance can suggest. Logical movement is movement only by permissible figure of speech, just as figure of speech is not figure in the spatial sense.

Now the Behaviourist asks if we wish to deny outright the dependence of what we call mind on matter. He is moved to mirth at the spectacle of an alleged freedom that is bound by such chains as are those of human bodies. A degree of such dependence has always been admitted by all who

have thought at all seriously about the relations of body and mind. It is only caricature that can see in freedom a wild thrashing about of a something-or-other that has no connection with physical law. At inopportune moments this wild something enters and begins to play havoc. Well, if there were any such bogey it could only act according to law. A thinker once protested against freedom as likely to "lunge about." Lunging can be done only under law. If freedom is the bull-in-the-china-shop of philosophy, we need not think that law is set aside by bovine rushings and smashings. We cannot escape law by rushing about, and no sensible expounder of freedom ever thought we could. In truth the lunging about is not suggestive of freedom at all, but of determinism. If we were at the mercy of stimuli to the degree the Behaviourist imagines, with no will to set ourselves to control the responses to stimuli, we should do an immense amount of lunging about. Indeed, on strictly behaviourist principles, the bull-in-the-china-shop is your true Behaviourist. He is immediately responsive to stimuli. On the other hand, the free and willing subjection to law is the highest manifestation of the free spirit.

Nobody whose opinion is worth considering denies a measure of dependence of will on matter. It has been known since Cain killed Abel that the destruction of a human body will stop the working of the free spirit through that body, though that

may mean nothing more than that an instrument is broken. The higher spiritual faculties have long been connected, in our theories, with the brain. The increased localization of functions in particular brain tracts is only an enlargement of what we have really known all along.

We live at given times and places, and cannot change the times at all, and the places only slightly. We are shut down in a thin blanket of atmosphere on the surface of the earth, and to limited areas of that surface. If our bodily organisms experience six or seven degrees of heat above a certain point, we cease to be. The days of our years are threescore and ten, but the overwhelming majority of men born since the beginning have not reached one score years. By arduous and scrupulous care men can live to four-score. All of which is commonplace. Within the limits of our bank and shoal of time, however, we can well enough learn our limitations as to live comfortably within them and in a degree to master them. We may dwell on a bank and shoal of time, but by the exercise of our free minds we have learned that the bank and shoal are not all. We know the direction of the stream, and can make sound guesses as to the ocean toward which it flows.

We admit a good many things in our belief in freedom. We admit the fact of stimuli, and rejoice that we can by heeding stimuli turn over to the bodily mechanism many functions which

make it a splendid tool and servant. The piano-player can so use his freedom as to make his fingers almost a part of the instrument which he plays, the fingers carrying on unconsciously to himself and mechanically the peculiarities of his free practice. Above all we can select out of the stimuli the ones to which we will respond. We choose the laws which we will obey. By heedless acceptance of whatever stirs us we can become mere mechanisms. By selecting from the environment the nobler stimuli we can build ourselves into increasing freedom, attaining to that selfhood which is an end-in-itself. More than that, we can change the environment itself, so that it sends upon us more quickly and directly the stimuli which we choose for our own service and the service of man. Finally, we attain to a paradox which is high wisdom: by best serving the world of men and things we attain the largest and best freedom.

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